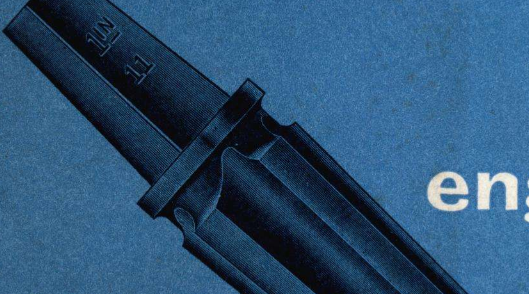
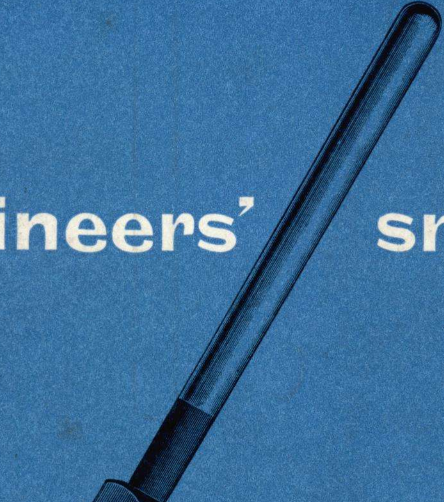
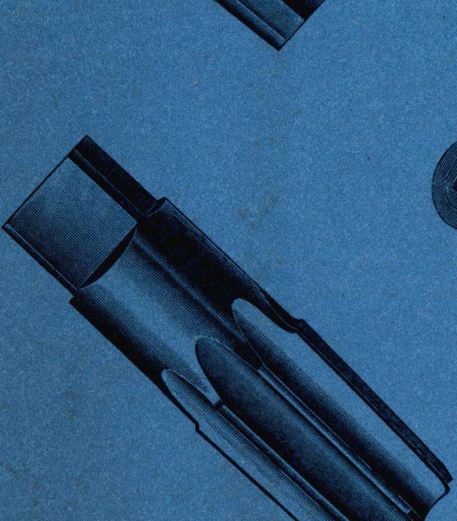
Hall marked G&J H LTD *for Quality*

G. & J. Hall Limited





engineers' small tools



backed by a name

G. & J. Hall Limited

HEREFORD STREET
SHEFFIELD 1
ENGLAND

TELEPHONES
78781 & 78782

TELEGRAMS
'TOOLS' SHEFFIELD 1

CATALOGUE 99

Established in the year 1865, G. & J. Hall Limited, have always been acknowledged masters of their craft, and their name is a household word amongst their many Merchant friends at home and abroad.

The range of tools presented in this catalogue is the outcome of a continuous process of improvement in the quality of the products allied with the use of the finest raw materials available.

We offer you our services both in the stock delivery of standard tools and in the design and manufacture of special products.

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index

SECTION ONE — **Stocks and Dies (with and without cases), American, Angular, Solid and Split Circular, Reed, Ratchets, and Mini-Ratchets**
SECTION TWO — **Die Nuts, Taps and Tap Wrenches**
SECTION THREE — **Braces, Wrenches and Fitters' Accessories**
SECTION FOUR — **Pipe Fitters' Taps and Reamers**
SECTION FIVE — **High Speed Steel Reamers**

PLEASE ORDER THROUGH YOUR LOCAL MERCHANT

SAVE TIME and MONEY by ordering STANDARD TOOLS wherever possible

SECTION ONE

our guide to your selection of stocks and dies —

AMERICAN TYPE
(Page 4)

This is one of the most efficient forms of hand screwing tools combining, as it does, accuracy with rigidity and at the same time giving ample adjustment. We strongly recommend this type for the use the craftsman who desires to produce work of high quality and to possess equipment with a long life and resistance to wear. The apparent complex design explains its many decided advantages including the double bevelling which allows the dies to be reversed to screw up to a shoulder or face on the work-piece.

Unlike the Split Circular type which relies for accuracy entirely upon the exact fit of the Dies in the holder and, for security, upon the adjusting screws, the American type dies fit into a bevelled slot in the cap and the guide then forces the dies firmly and evenly into the cap slot. The guide serves also as a precise location for the die in relation to the work during the whole process of screwing. All parts are interchangeable with those of American manufacture.
In this catalogue, we have omitted the traditional term "collet". This term was previously used to describe a cap-and-guide-assembly, but, on occasion in the past has caused considerable confusion.

ANGULAR TYPE
(Page 8)

This is one of the oldest patterns of screwing tools but still survives on account of its simplicity and range of adjustment. It is, therefore, eminently suited to work on board ships, or in places far removed from the nearest supply depot, as in case of necessity, sufficiently servicable dies to carry out an emergency repair, can be made by any skilled fitter.
Stocks and Dies are made from the highest grade material, being very robust and durable will stand very rough useage.

SPLIT CIRCULAR TYPE
(Page 13)

These are probably the cheapest and most commonly used form of tool for producing external threads. They have definite limitations due to the fact that no provision is made for guiding the die on to the work-piece, and also there is only

SECTION ONE

AMERICAN
ANGULAR
SOLID & SPLIT CIRCULAR
RATCHETS
MINI-RATCHET

a small allowance for adjustment by means of the three screws in the stock – one for expansion and two for contraction. They are the most suitable tools for light general work and are interchangeable with similar tools of other manufacture.

SOLID CIRCULAR TYPE *(Page 17)*	These stocks and dies are favoured, chiefly, by Electrical Contractors as, due to the comparatively close limits of conduit tubing, no adjustment is required and the more expensive types are, therefore, unnecessary. The Stocks are light in weight but of robust construction and the dies are designed to produce a full clean thread with one cut. All parts are interchangeable with other makes.
196 RATCHET STOCKS REED TYPE *(Page 18)*	These are specially designed for the heavy duty work as carried out by Gas and Coal Boards and general Structural Contractors. They are the most suitable types for work in trenches and confined spaces where the enclosed mechanism gives protection against mud and dirt, and where space precludes the use of a double handed Stock. They can be changed easily to reverse action. The 196A type is supplied with removable head, die and combined die holder and guide for each screwing size. The alternative 196C is more suitable for larger screwing sizes. It has one die holder and loose dies and bushings of each screwing size. Either type is easily dismantled exposing the Ratchet mechanism for cleaning and oiling.
395 DOUBLE ACTION RATCHET TYPE *(Page 20)*	When combined with the Mini-ratchet set below these two patterns will cover the complete range from $\frac{1}{8}''$ to 2″ B.S.P., and as such is an ideal kit for Heating Engineers and similar trades. Brass and Conduit Threads can be supplied as extras to this range. This type is also a Super-Quality alternative to type 196 above.
MINI-RATCHET *(Page 20)*	This is an improved double action Ratchet Stock for screwing the smaller sizes of brass and copper tube. It is an extremely handy tool for the plumber, pipe-fitter or heating engineer, who has repair and installation jobs to carry out in confined spaces for which he must have a compact and portable tool.

SAVE TIME and MONEY by ordering STANDARD TOOLS wherever possible

No. 600

AMERICAN TYPE STOCKS AND DIES

INTERCHANGEABLE WITH THOSE OF AMERICAN MANUFACTURE

For screwing
B.S.W., B.S.F.,
N.C. (U.S.S.),
N.F. (S.A.E.),
U.N.C., U.N.F.,
B.S. BRASS, & METRIC
Threads

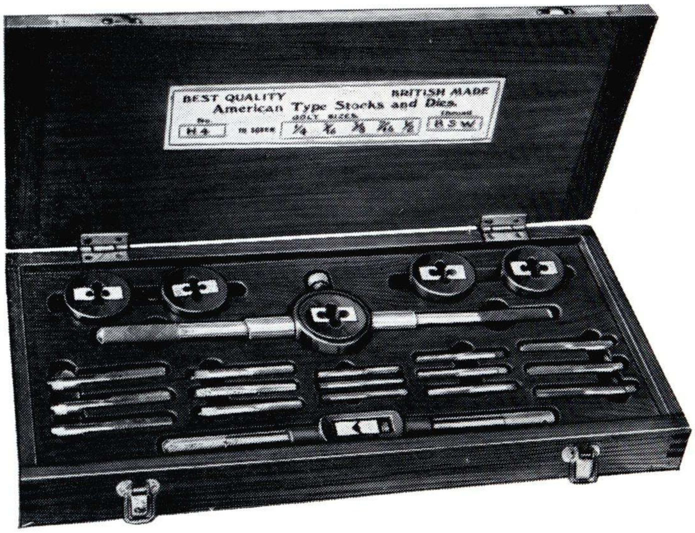
Each Set consisting of:

One Cap and Guide

One (2 piece) Adjustable Die to each size

Die Stock(s), Tap Wrench(es) and Best Cast Steel Taps (as indicated)

Complete in Polished Wood Cases


BEST QUALITY BRITISH MADE
American Type Stocks and Dies
No. H 4
TO SCREW
BOLT SIZES ¼ 5/16 3/8 7/16 ½
THREAD BSW

**If required*
Two sets can be supplied in one case
i.e. **B.S.W./B.S.F.,**
B.S.W./U.N.C.,
B.S.W./U.N.F.,
B.S.W./U.N.C.,
B.S.F./U.N.F.,
U.N.C./U.N.F.

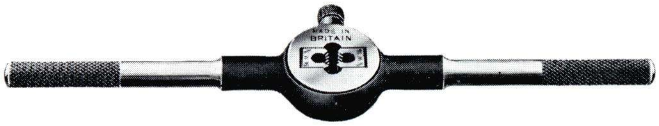
When Ordering

Please indicate Threads required

SCREWING SIZES IN INCHES	Diameter of Stock(s) in Inches	SYMBOL LETTERS AND NUMBERS			
		Tap Wrench(es)	With Taper Taps	With Taper & Bottoming Taps	With Taper Second & Bottoming Taps
$\frac{1}{8}\ \frac{5}{32}\ \frac{3}{16}\ \frac{7}{32}\ \frac{1}{4}$:	$1\frac{1}{4}$	TW0	H1–1	H1–2	H1–3
$\frac{1}{16}\ \frac{3}{32}\ \frac{1}{8}\ \frac{5}{32}\ \frac{3}{16}\ \frac{7}{32}\ \frac{1}{4}$:	$1\frac{1}{4}$	TW0	H2–1	H2–2	H2–3
$\frac{1}{8}\ \frac{5}{32}\ \frac{3}{16}\ \frac{7}{32}\ \frac{1}{4}–\frac{5}{16}:\frac{3}{8}$:	$1\frac{1}{4}:2$	TW1	H3–1	H3–2	H3–3
$\frac{3}{16}\ \frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}$:	2	TW1	H3A–1	H3A–2	H3A–3
*$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}$:	2	TW1	H4–1	H4–2	H4–3
*$\frac{1}{4}:\frac{3}{8}:\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	$2\frac{3}{4}$	TW2	H5–1	H5–2	H5–3
*$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}:\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	$2\frac{3}{4}$	TW2	H6–1	H6–2	H6–3
$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}–\frac{1}{2}\ \frac{9}{16}\ \frac{5}{8}\ \frac{3}{4}$:	$2:2\frac{3}{4}$	TW2	H6A–1	H6A–2	H6A–3
*$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	$2\frac{3}{4}$	TW2	H7–1	H7–2	H7–3
$\frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1$:	$2\frac{3}{4}$	TW3	H8–1	H8–2	H8–3
$\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1$:	$2\frac{3}{4}$	TW3	H9–1	H9–2	H9–3
$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}:\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1$:	$2\frac{3}{4}$	TW1·TW3	H10–1	H10–2	H10–3
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}\ \frac{9}{16}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1$:	$2\frac{3}{4}$	TW1·TW3	H10A–1	H10A–2	H10A–3
$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}–\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1$:	$2:2\frac{3}{4}$	TW1·TW3	H11–1	H11–2	H11–3
$\frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1:1\frac{1}{8}\ 1\frac{1}{4}$:	4	TW4	H12–1	H12–2	H12–3
$\frac{7}{8}\ 1:1\frac{1}{8}\ 1\frac{1}{4}:1\frac{3}{8}\ 1\frac{1}{2}$:	$4\frac{1}{2}$	TW4	H13–1	H13–2	H13–3
$1\frac{1}{8}\ 1\frac{1}{4}:1\frac{3}{8}\ 1\frac{1}{2}$:	$4\frac{1}{2}$	TW4	H14–1	H14–2	H14–3
$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}:\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1–1\frac{1}{8}\ 1\frac{1}{4}$:	$2\frac{3}{4}:4$	TW2·TW4	H15–1	H15–2	H15–3
$\frac{1}{4}\ \frac{5}{16}:\frac{3}{8}\ \frac{7}{16}:\frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}:\frac{7}{8}\ 1–1\frac{1}{8}\ 1\frac{1}{4}:1\frac{3}{8}\ 1\frac{1}{2}$:	$2\frac{3}{4}:4\frac{1}{2}$	TW2·TW4	H16–1	H16–2	H16–3

For particulars of SPARES see page 5

SPARES FOR AMERICAN TYPE BOLT STOCKS AND DIES



STOCK WITH CAP, GUIDE AND DIES COMPLETE

DIES

CAP

GUIDE

CAP AND GUIDE ASSEMBLED

SCREW

When Ordering SPARES *the following are* ESSENTIAL DETAILS

Stocks:

(a) Internal Diameter
(b) Largest Screwing Size

Caps and Guides (Collets):

External Diameter

Dies:

(a) Internal Diameter of Stock
(b) Screwing Size

To Fit Stock Diameter	SCREWING SIZES IN INCHES					METRIC (S.I.)
	B.S.W.	B.S.F.	N.C. & U.N.C.	N.C. & U.N.F.	B.S. BRASS	
1 1/4	1/16 to 1/4 x 32nds	3/16 to 1/4 x 32nds	1/4	1/4	1/4	—
2	3/16 to 1/2 x 16ths	3/16 to 1/2 x 16ths	1/4 to 1/2 x 16ths	1/4 to 1/2 x 16ths	1/4 to 1/2 x 16ths	6, 7, 8, 9, 10, 11, 12
2 3/4	3/16 to 1 x 16ths	3/16 to 1 x 16ths	1/4 to 1 x 16ths	1/4 to 1 x 16ths	1/4 to 1 x 16ths	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24
4	5/8 to 1 1/4	5/8 to 1 1/4	5/8 to 1 1/4	5/8 to 1 1/4	5/8 to 1 1/4	16, 18, 20, 22, 24
4 1/2	13/16 to 1 1/2	13/16 to 1 1/2	13/16 to 1 1/2	13/16 to 1 1/2	7/8 to 1 1/2	22, 24

No. 603 AND 604
AMERICAN TYPE STOCKS AND DIES
INTERCHANGEABLE WITH THOSE OF AMERICAN MANUFACTURE

No Caps and Guides

Dies fit directly into Stock

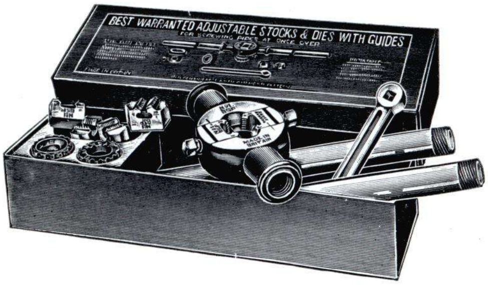
Die Slots in Stock permit of different screwing sizes being accommodated in the same Stock

Screw-in Guide secures the Dies in Stock

Separate Bushing-piece for each size of Die

Ample adjustment

Packed in strong Cardboard Cartons


BEST WARRANTED ADJUSTABLE STOCKS & DIES WITH GUIDES
FOR SCREWING PIPES AT ONCE OVER
MADE IN BRITAIN

Each Set consisting of:

One Stock with Screw-in Guides with Handles

One pair of Dies for each size

One Bushing-piece for each size

One Spanner

No. 603

For Screwing

B.S.P.T., N.P.T., A.P.I.

Threads

SCREWING SIZES FOR PIPES IN INCHES						SYMBOL LETTERS AND NUMBERS	
						SET	DIES
		⅛	¼	⅜	½	603/0	O/PIPE
	¼	⅜	½	¾	1	603/1A	1A/PIPE
			½	¾	1	603/1B	1B/PIPE
⅛	¼	⅜	½	¾	1	603/1C	1C/PIPE
		½	¾	1	1¼	603/1½A	1½A/PIPE
¼	⅜	½	¾	1	1¼	603/1½B	1½B/PIPE
			1¼	1½	2	603/2A	2A/PIPE
		1	1¼	1½	2	603/2B	2B/PIPE
				2½	3	603/2C	2C/PIPE

No. 604

For Screwing

B.S.CON. (ELECTRICAL) OR B.S. COPPER

Threads

SCREWING SIZES IN INCHES					SYMBOL LETTERS AND NUMBERS	
					SET	DIES
			⅝	¾	604/S0A	0A/CON
		½	⅝	¾	604/S0B	0B/CON
½	⅝	¾	⅞	1	604/S1A	1A/CON
		⅝	¾	1	604/S1D	1D/CON
		¾	1	1¼	604/S1E	1E/CON
		1¼	1½	2	604/S2C	2C/CON

For particulars of SPARES see page 7

No. 605

AMERICAN TYPE STOCKS AND DIES

INTERCHANGEABLE WITH THOSE OF AMERICAN MANUFACTURE

No Caps and Guides

Dies fit directly into Stock

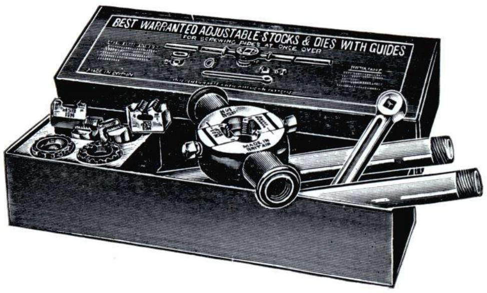
Die Slots in Stock permit of different screwing sizes being accommodated in the same Stock

Screw-in Guide secures the Dies in Stock

Separate Bushing-piece for each size of Die

Ample adjustment

Packed in strong Cardboard Cartons


BEST WARRANTED ADJUSTABLE STOCKS & DIES WITH GUIDES
FOR SCREWING PIPES AT ONCE OVER

Each Set consists of:

One Stock with Screw-in Guides with Handles

One pair of Dies for each size

One Bushing-piece for each size

One Spanner

No. 605

For Screwing

B.S.W., B.S.F.,

U.N.C., U.N.F.

Threads

SCREWING SIZES IN INCHES	Symbol Letters & Numbers	
	SET	DIES
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	605/OW1	OW
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	605/OW2	OW
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	605/OW3	OW
$\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	605/IW4	IW
$\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	605/IW5	IW

SPARES — STOCKS, DIES, GUIDES, BUSHINGS, ETC.
FOR Nos. 603, 604 AND 605

When Ordering these SPARES *the following are* ESSENTIAL DETAILS

(a) Size or Symbol Letter and Number

(b) Screwing Size of Die

(c) Type of Thread

Stock No.	RANGE OF CUTTING SIZES IN INCHES			SYMBOL LETTERS AND NUMBERS				
	B.S.P.T. N.P.T. A.P.I.	B.S. Con. B.S. Copper	B.S.W. B.S.F. U.N.C. U.N.F.	Stock with Screw-in Guide & Handles	Guides Screw-in	Bushings	Handles	Spanners
0	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	$\frac{1}{4}$ to $\frac{3}{4}$	YS/O	XG/O	WB/O	VH/O	US/O
1	$\frac{1}{8}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	$\frac{1}{2}$ to $1\frac{1}{4}$	YS/1	XG/1	WB/1	VH/1	US/1
$1\frac{1}{2}$	$\frac{1}{4}$ to $1\frac{1}{4}$	—	—	YS/$1\frac{1}{2}$	XG/$1\frac{1}{2}$	WB/$1\frac{1}{2}$	VH/$1\frac{1}{2}$	US/$1\frac{1}{2}$
2	1 to 2	$1\frac{1}{4}$ to 2	—	YS/2	XG/2	WB/2	VH/2	US/2
3	$2\frac{1}{2}$ to 3	—	—	YS/3	XG/3	WB/3	VH/3	US/3

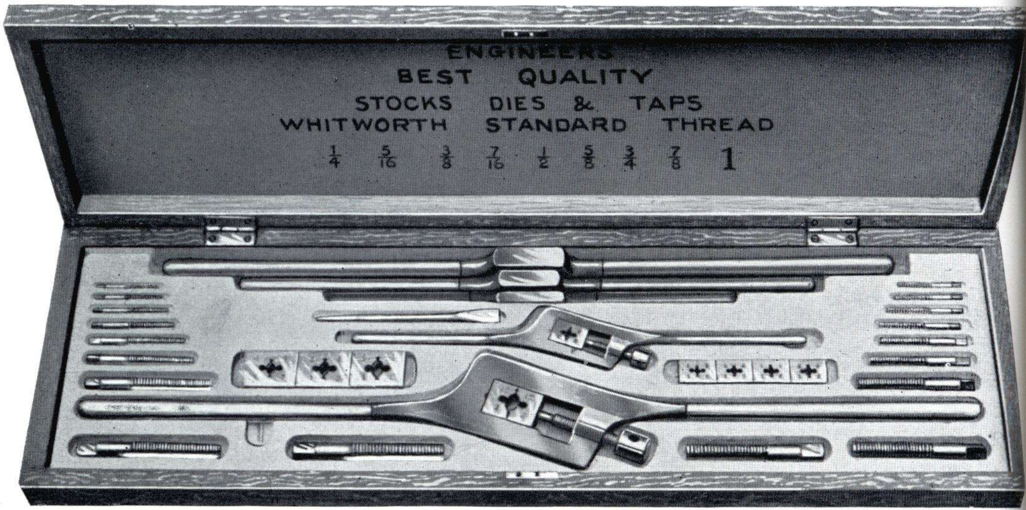
No. 276

ANGULAR TYPE STOCKS AND DIES

Each Set consisting of:

One (2 piece) Angular Adjustable Die for each size
Die Stock(s), 1 Tap Wrench(es) and Best Cast Steel Taps (as indicated)

Complete in Polished Wood Cases



No. 276

For Screwing
B.S.W., B.S.F., N.C., N.F., U.N.C., U.N.F.,
Threads

SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS			
	With Taper & Bottoming Taps	With Taper Second & Bottoming Taps	Stocks	Tap Wrenches
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}$:	A–2T	A–3T	A:CS	TW1
$\frac{1}{8}\ \frac{3}{16}\ \frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}$:	B–2T	B–3T	A:CS	TW1
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}$:	C–2T	C–3T	C:DS	TW2
$\frac{1}{8}\ \frac{3}{16}\ \frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}-\frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}$:	D–2T	D–3T	D:BS:DS	TWA:TW2
$\frac{1}{4}\ \frac{3}{8}\ \frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	E–2T	E–3T	E:ES	TW2
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	F–2T	F–3T	F:ES	TW2
$\frac{1}{8}\ \frac{3}{16}\ \frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}-\frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}\ \frac{3}{4}$:	G–2T	G–3T	G:BS:ES	TWA:TW2
$\frac{1}{4}\ \frac{3}{8}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1$:	I–2T	I–3T	I:CS:GS	TWB:TW3
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1$:	J–2T	J–3T	J:CS:GS	TWB:TW3
$\frac{1}{4}\ \frac{3}{8}\ \frac{1}{2}\ \frac{5}{8}-\frac{3}{4}\ \frac{7}{8}\ 1\ 1\frac{1}{8}\ 1\frac{1}{4}$:	L–2T	L–3T	L:DS:HS	TWB:A6
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}\ \frac{5}{8}-\frac{3}{4}\ \frac{7}{8}\ 1\ 1\frac{1}{8}\ 1\frac{1}{4}$:	M–2T	M–3T	M:DS:HS	TWB:A6
$\frac{1}{4}\ \frac{3}{8}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1-1\frac{1}{8}\ 1\frac{1}{4}\ 1\frac{3}{8}\ 1\frac{1}{2}$:	O–2T	O–3T	O:CS:GS:IS	TW2:TW4
$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1-1\frac{1}{8}\ 1\frac{1}{4}\ 1\frac{3}{8}\ 1\frac{1}{2}$:	P–2T	P–3T	P:CS:GS:IS	TW2:TW4
*$\frac{1}{4}\ \frac{3}{8}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1-1\frac{1}{8}\ 1\frac{1}{4}\ 1\frac{3}{8}\ 1\frac{1}{2}-1\frac{3}{4}\ 1\frac{7}{8}\ 2$:	R–2T	R–3T	R:CS:GS:IS:KS	TW3:TW5
*$\frac{1}{4}\ \frac{5}{16}\ \frac{3}{8}\ \frac{7}{16}\ \frac{1}{2}-\frac{5}{8}\ \frac{3}{4}\ \frac{7}{8}\ 1-1\frac{1}{8}\ 1\frac{1}{4}\ 1\frac{3}{8}\ 1\frac{1}{2}-1\frac{5}{8}\ 1\frac{3}{4}\ 1\frac{7}{8}\ 2$:	S–2T	S–3T	S:CS:GS:IS:KS	TW3:TW5
$1\frac{5}{8}\ 1\frac{3}{4}\ 1\frac{7}{8}\ 2$:	T–2T	T–3T	T:KS	TW5

*Sets R and S each fitted in two cases P and T

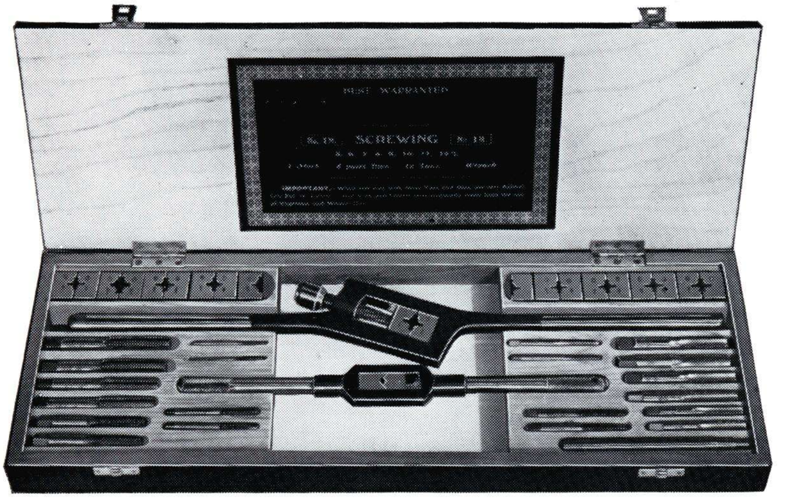
No. 281 and 290

ANGULAR TYPE STOCKS AND DIES

Each Set consisting of:

One (2 piece) Angular Adjustable Die for each size
Die Stock(s), 1 Tap Wrench(es) and Best Cast Steel Taps (as indicated)

Complete in Polished Wood Cases



No. 281

For Screwing
BRITISH STANDARD PIPE B.S.P.
(Parallel Thread)

SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS		
	With Taper & Bottoming Taps	Tap Wrench(es)	Stocks
$\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$:	BG	TW3	3G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$:	DG	TW4	4G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1:	HG	TW1:TW4	5G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$–$\frac{3}{4}$ 1 $1\frac{1}{4}$:	JG	TW1:TW4	3G:6G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$–1 $1\frac{1}{4}$ $1\frac{1}{2}$:	LG	TW3:TW5	4G:7G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$–1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2:	NG	TW3:TW5	4G:9G
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$–1 $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ 2:	PG	TW3:TW5	4G:9G

No. 290

ANGULAR TYPE STOCKS AND DIES

No. 290

For Screwing
METRIC
Threads

SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS		
	With Taper & Bottoming Taps	Tap Wrench(es)	Stocks
3 4 5 6 7 8 9 10 11 12	OM	TW1	CS
5 6 7 8 9 10 11 12	1M	TW1	CS
5 6 7 8 9 10– 11 12 14 16 18 20	2M	TW2	BS:DS
5 6 8 10 12 14 16– 18 20 22 24 27 30 33	3M	TW2:TW4	DS:HS

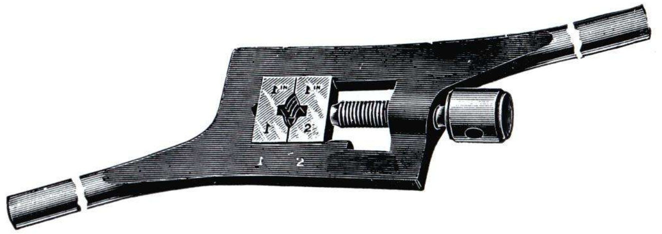
No. 282

ANGULAR TYPE STOCKS AND DIES

WITHOUT CASES

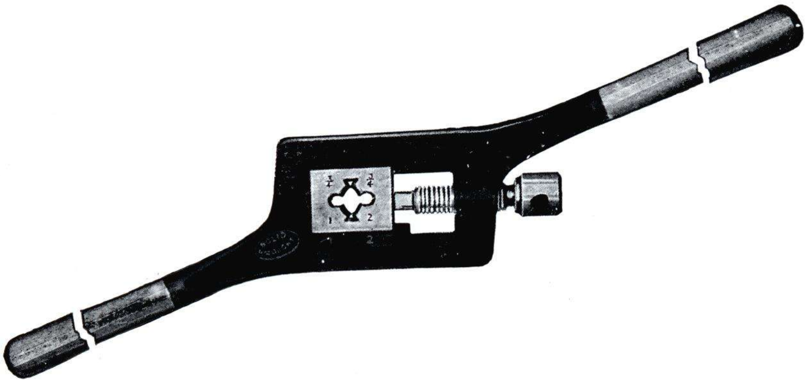
For screwing

BRITISH
STANDARD PIPE
B.S.P.
(Parallel Thread)



SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS				
	Stock & Dies Only	With Taper & Bottoming Taps	With Taper, Second & Bottoming Taps	STOCKS	DIES
$\frac{1}{8}$ $\frac{1}{4}$	1G1	1G1–2T	1G1–3T	1G	1GD
$\frac{1}{4}$ $\frac{3}{8}$	2G1	2G1–2T	2G1–3T	2G	2GD
$\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$	2G2	2G2–2T	2G2–3T		
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	3G1	3G1–2T	3G1–3T	3G	3GD
$\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	3G2	3G2–2T	3G2–3T		
$\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$	4G1	4G1–2T	4G1–3T	4G	4GD
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$	4G2	4G2–2T	4G2–3T		
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	4G3	4G3–2T	4G3–3T		
$\frac{1}{2}$ $\frac{3}{4}$ 1	5G1	5G1–2T	5G1–3T	5G	5GD
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1	5G2	5G2–2T	5G2–3T		
$\frac{3}{4}$ 1 $1\frac{1}{4}$	6G1	6G1–2T	6G1–3T	6G	6GD
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$	6G2	6G2–2T	6G2–3T		
1 $1\frac{1}{4}$ $1\frac{1}{2}$	7G1	7G1–2T	7G1–3T	7G	7GD
$\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$	7G2	7G2–2T	7G2–3T		
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$	7G3	7G3–2T	7G3–3T		
$1\frac{1}{4}$ $1\frac{1}{2}$ 2	9G1	9G1–2T	9G1–3T	9G	9GD
$1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ 2	9G2	9G2–2T	9G2–3T		

No. 277
ANGULAR TYPE STOCKS AND DIES
WITHOUT CASES



For Screwing

B.S.W., B.S.F., N.C.,
N.F., U.N.C., U.N.F.
Threads

SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS				
	Stock & Dies Only	With Taper & Bottoming Taps	With Taper, Second & Bottoming Taps	STOCKS	DIES
$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$	AS1	AS1–2T	AS1–3T	AS	ASD
$\frac{1}{16}$ $\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$	AS2	AS2–2T	AS2–3T		
$\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$	BS1	BS1–2T	BS1–3T	BS	BSD
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$	BS2	BS2–2T	BS2–3T		
$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$	BS3	BS3–2T	BS3–3T		
$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$	BS4	BS4–2T	BS4–3T		
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	CS1	CS1–2T	CS1–3T	CS	CSD
$\frac{1}{8}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	SC2	CS2–2T	CS2–3T		
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	CS3	CS3–2T	CS3–3T		
$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	CS4	CS4–2T	CS4–3T		
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$	DS1	DS1–2T	DS1–3T	DS	DSD
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$	DS2	DS2–2T	DS2–3T		
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$	DS3	DS3–2T	DS3–3T		
$\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	ES1	ES1–2T	ES1–3T	ES	ESD
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	ES2	ES2–2T	ES2–3T		
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	ES3	ES3–2T	ES3–3T		

No. 277—CONTINUED
ANGULAR TYPE STOCKS AND DIES
WITHOUT CASES

For Screwing
B.S.W., B.S.F., N.C.,
N.F., U.N.C., U.N.F.
Threads

SCREWING SIZES IN INCHES	SYMBOL LETTERS AND NUMBERS				
	Stock & Dies Only	With Taper & Bottoming Taps	With Taper, Second & Bottoming Taps	STOCKS	DIES
½ ¾ 1	GS1	GS1–2T	GS1–3T	GS	GSD
⅝ ¾ ⅞ 1	GS2	GS2–2T	GS2–3T		
½ ⅝ ¾ ⅞ 1	GS3	GS3–2T	GS3–3T		
¾ 1 1¼	HS1	HS1–2T	HS1–3T	HS	HSD
1 1⅛ 1¼	HS2	HS2–2T	HS2–3T		
¾ ⅞ 1 1¼	HS3	HS3–2T	HS3–3T		
⅞ 1 1⅛ 1¼	HS4	HS4–2T	HS4–3T		
¾ ⅞ 1 1⅛ 1¼	HS5	HS5–2T	HS5–3T		
1 1¼ 1½	IS1	IS1–2T	IS1–3T	IS	ISD
1¼ 1⅜ 1½	IS12	IS2–2T	IS2–3T		
1⅛ 1¼ 1⅜ 1½	IS3	IS3–2T	IS3–3T		
1 1⅛ 1¼ 1⅜ 1½	IS4	IS4–2T	IS4–3T		
1¼ 1½ 2	KS1	KS1–2T	KS2–3T	KS	KSD
1½ 1¾ 2	KS2	KS2–2T	KS2–3T		
1¼ 1½ 1¾ 2	KS3	KS3–2T	KS3–3T		
1½ 1⅝ 1¾ 1⅞ 2	KS4	KS4–2T	KS4–3T		

No. 510

SPLIT CIRCULAR TYPE STOCKS AND DIES

IN POLISHED WOOD CASES

Each Case consisting of:

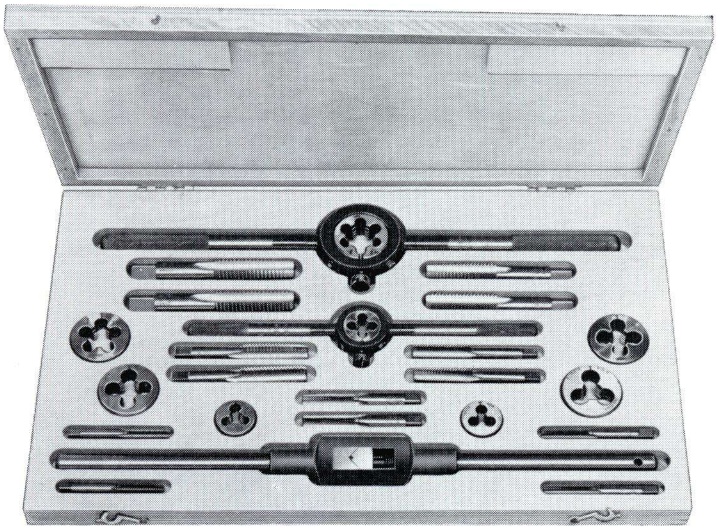
Split Circular Die for each screwing size (Diameter of dies as indicated)

Die Stock for each diameter of dies

Tap Wrench(es) as indicated

Taper and Bottoming Taps to each size

Taper, Second and Bottoming Taps can be supplied when requested: at appropriate extras



BRITISH STANDARD WHITWORTH (B.S.W.)

SCREWING SIZES IN INCHES	SET - SYMBOL LETTER		Diameter of Dies	Tap Wrench(es) — Symbol Letter
	With Taper & Bottoming Taps	With Taper, Second & Bottoming Taps		
$\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$	510/1–2T	510/1–3T	$\frac{13}{16}$	TWA
$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$	510/2–2T	510/2–3T	$\frac{13}{16}$	TWA
$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$–$\frac{5}{16}$ $\frac{3}{8}$	510/3–2T	510/3–3T	$\frac{13}{16}:1$	TWB
$\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{4}$–$\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/4–2T	510/4–3T	$\frac{13}{16}:1\frac{5}{16}$	TWB
$\frac{3}{16}$ $\frac{1}{4}$–$\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/5–2T	510/5–3T	$\frac{13}{16}:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/6–2T	510/6–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	510/7–2T	510/7–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$	510/8–2T	510/8–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$–$\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/9–2T	510/9–3T	$1:1\frac{5}{16}:2$	TWB:TW3
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$–$\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/10–2T	510/10–3T	$1:1\frac{5}{16}:2$	TWB:TW3

BRITISH STANDARD FINE (B.S.F.)

$\frac{3}{16}$ $\frac{1}{4}$–$\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/15–2T	510/15–3T	$\frac{13}{16}:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$	510/16–2T	510/16–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/17–2T	510/17–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	510/18–2T	510/18–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$–$\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/19–2T	510/19–3T	$1:1\frac{5}{16}:2$	TWB:TW3
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$–$\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/20–2T	510/20–3T	$1:1\frac{5}{16}:2$	TWB:TW3

COMBINATION SETS (B.S.W. & B.S.F.)

$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$	510/25–2T	510/25–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$–$\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/26–2T	510/26–3T	$1:1\frac{1}{2}$	TWB:TW2

Unless otherwise specified Cased Sets with two Taps will be supplied

No. 510

SPLIT CIRCULAR TYPE STOCKS AND DIES

IN POLISHED WOOD CASES

Each Case consisting of:

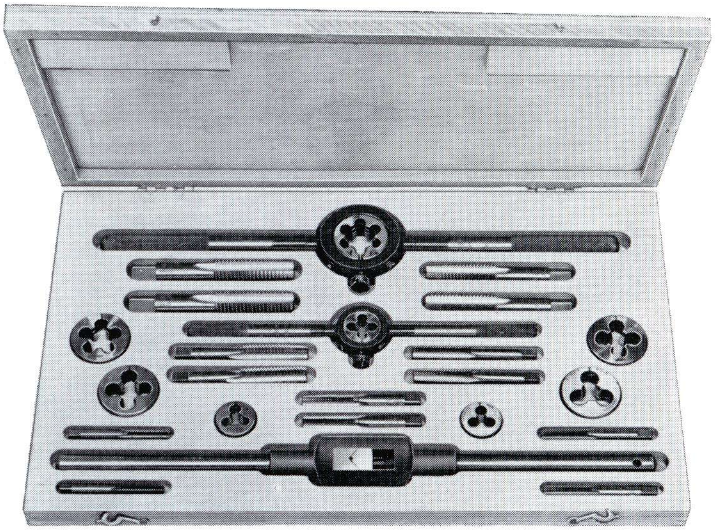
Split Circular Die for each screwing size (Diameter of dies as indicated)

Die Stock for each diameter of dies

Tap Wrench(es) as indicated

Taper and Bottoming Taps to each size

Taper, Second and Bottoming Taps can be supplied when requested: at appropriate extras



UNIFIED AND NATIONAL FINE (U.N.F. & N.F.)

SCREWING SIZES IN INCHES	SET - SYMBOL LETTER		Diameter of Dies	Tap Wrench(es) — Symbol Letter
	With Taper & Bottoming Taps	With Taper, Second & Bottoming Taps		
10 $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/30–2T	510/30–3T	$\frac{13}{16}:1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/31–2T	510/31–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/32–2T	510/32–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	510/33–2T	510/33–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/34–2T	510/34–3T	$1:1\frac{5}{16}:2$	TWB:TW3
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/35–2T	510/35–3T	$1:1\frac{5}{16}:2$	TWB:TW3

UNIFIED AND NATIONAL COARSE (U.N.C. & N.C.)

4 6 8 10 $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/40–2T	510/40–3T	$\frac{13}{16}:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/41–2T	510/41–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/42–2T	510/42–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$	510/43–2T	510/43–3T	$1:1\frac{1}{2}$	TWB:TW2
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/44–2T	510/44–3T	$1:1\frac{5}{16}:2$	TWB:TW3
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ 1	510/45–2T	510/45–3T	$1:1\frac{5}{16}:2$	TWB:TW3

COMBINATION SETS (U.N.F. & U.N.C.—N.F. & N.C.

$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/49–2T	510/49–3T	$1:1\frac{5}{16}$	TWB
$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	510/50–2T	510/50–3T	$1:1\frac{1}{2}$	TWB:TW2

COMBINATION SETS (B.S.W.—B.S.F.—U.N.F.)

$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	510/51–2T	510/51–3T	$1:1\frac{5}{16}$	TWB

Unless otherwise specified Cased Sets with 2 Taps will be supplied

No. 510

SPLIT CIRCULAR TYPE STOCKS AND DIES

IN POLISHED WOOD CASES

Each Case consisting of:

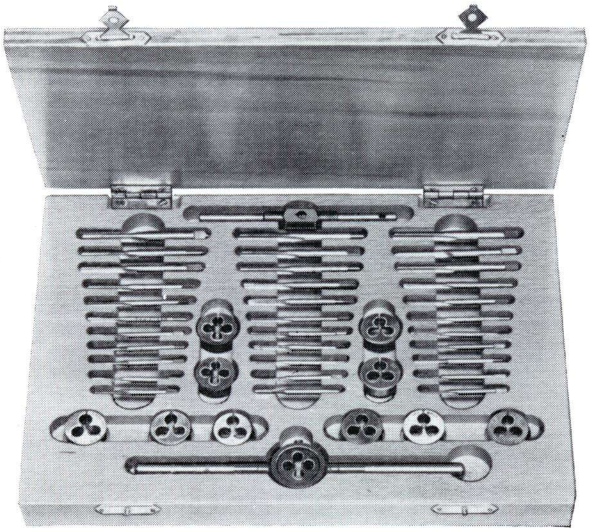
Split Circular Die for each screwing size (Diameter of dies as indicated)

Die Stock for each diameter of dies

Tap Wrench(es) as indicated

Taper and Bottoming taps to each size

Taper, Second and Bottoming Taps can be supplied when requested at appropriate extras



BRITISH ASSOCIATION (B.A.)

SCREWING SIZES	SET - SYMBOL LETTER With Taper & Bottoming Taps	 With Taper, Second & Bottoming Taps	Diameter of Dies	Tap Wrench(es) — Symbol Letter
0 2 4 6 8	510/55–2T	510/55–3T	$\frac{13}{16}$	TWA
0 2 4 6 8 10	510/56–2T	510/56–3T	$\frac{13}{16}$	TWA
0 1 2 3 4 5 6	510/57–2T	510/57–3T	$\frac{13}{16}$	TWA
0 1 2 3 4 5 6 7 8	518/58–2T	510/58–3T	$\frac{13}{16}$	TWA
0 1 2 3 4 5 6 7 8 9 10	510/59–2T	510/59–3T	$\frac{13}{16}$	TWA

SYSTEME INTERNATIONALE (S.I.) METRIC

5 6 7–8 9 10 11 12	510/64–2T	510/64–3T	$\frac{13}{16}$: $1\frac{5}{16}$	TWB
6 7–8 9 10 11 12	510/65–2T	510/65–3T	$\frac{13}{16}$: $1\frac{5}{16}$	TWB
3 4 5 6 7–8 9 10	510/66–2T	510/66–3T	$\frac{13}{16}$: 1	TWB
14 16–18 20 22 24	510/67–2T	510/67–3T	$1\frac{1}{2}$: 2	TWB : TW3

MODEL ENGINEERS (M.E.)

$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$	510/70–2T	510/70–3T	$\frac{13}{16}$	TWA
$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$–$\frac{5}{16}$ $\frac{3}{8}$	510/71–2T	510/71–3T	$\frac{13}{16}$ 1	TWB

BRITISH STANDARD CYCLE (B.S..CY.)

$\frac{3}{16}$x32 : $\frac{1}{4}$x26 : $\frac{5}{16}$x26 : $\frac{3}{8}$x26 $\frac{1}{2}$x20 : $\frac{9}{16}$x20RH : $\frac{9}{16}$x20LH	510/75–2T	510/75–3T	$\frac{13}{16}$ $1\frac{5}{16}$	TW2

Unless otherwise specified Cased Sets with two Taps will be supplied

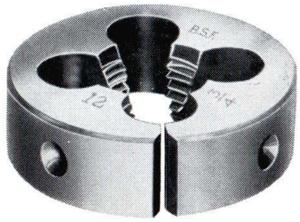
PLAIN ADJUSTABLE SPLIT CIRCULAR SCREWING DIES

No. 510CS

BEST CAST STEEL CUT THREADS

No. 510HS

HIGH SPEED STEEL GROUND THREADS



Ranges of Screwing Sizes accommodated in differing outside diameters

Supplied to B.S. 1127/H1950 and/or any subsequent amendment thereto in-so-far as it applies

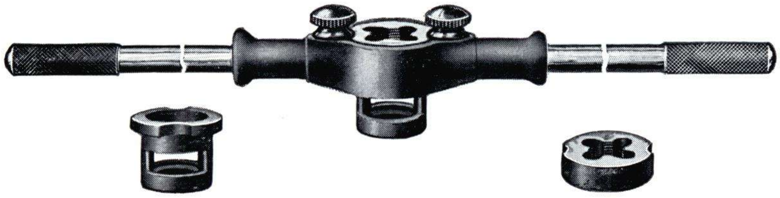
FRACTIONAL SIZES IN INCHES

Outside Diameter of Dies	Quality	B.S.W.	B.S.F.	N.C.	N.F.	U.N.C.	U.N.F.	M/M	B.S.P. B.S.P.T.	N.P.S. N.P.T.	B.S. Brass	B.S.Con.	B.S.CY.	M.E.	B.A.	N.S.
13/16	CSCT	1/16–1/4	3/16–1/4	No. 1–1/4	No. 0–1/4	No. 1–1/4	No. 0–1/4	1.7–7	—	—	—	—	1/8–1/4	1/8–1/4	No. 12–0	1/16–1/4
	HSSGT	1/8–1/4	3/16–1/4	No. 1–1/4	No. 0–1/4	No. 4–1/4	No. 10 & 1/4	1.7–7	—	—	—	—	—	—	No. 10–0	—
1	CSCT	1/8–3/8	3/16–3/8	No. 6–3/8	No. 6–3/8	No. 6–3/8	No. 6–3/8	3–10	1/8	1/8	1/4–3/8	—	1/4–3/8	1/4–3/8	No. 2–0	
	HSSGT	1/4–3/8	3/16–3/8	No. 6–3/8	No. 6–3/8	No. 6–3/8	No. 6–3/8	3–10	1/8	1/8	1/4–3/8	—	—	—	No. 2–0	
1 5/16	CSCT	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	6–14	1/8 & 1/4	1/8 & 1/4	1/4–1/2	1/2	1/4–9/16	1/4–1/2		
	HSSGT	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	1/4–9/16	6–14	1/8 & 1/4	1/8 & 1/4	1/4–1/2	—	—	—		
1 1/2	CSCT	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	6–20	1/8 1/4 3/8	1/8 1/4 3/8	3/8–5/8	1/2 & 5/8	3/8–9/16			
	HSSGT	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	1/4–3/4	6–20	1/8 1/4 3/8	1/8 1/4 3/8	1/4–3/4	—				
2	CSCT	3/8–1	3/8–1	3/8–1	3/8–1	3/8–1	3/8–1	10–24	1/4–3/4	1/4–3/4	1/2–1	1/2–1				
	HSSGT	3/8–1	3/8–1	3/8–1	3/8–1	3/8–1	3/8–1	12–24	1/4–3/4	1/4–3/4	1/2–1	—				
2 1/4	CSCT	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	14–27	3/8–1	3/8–1	5/8–1	5/8–1				
	HSSGT	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	9/16–1 1/8	14–24	3/8–1	3/8–1	5/8–1	—				
3	CSCT	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	24–36	3/4–1 1/4	3/4–1 1/4						
	HSSGT	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	1–1 1/2	24–39	3/4–1 1/4	3/4–1 1/4	1					
4	CSCT	1 1/4–2	1 1/4–2	1 1/4–1 1/2	1 1/4–1 1/2	1 1/4–1 1/2	1 1/4–1/2 1	33–36	1–2	1–2						
	HSSGT	1 1/4–2	1 1/4–2	—	—	—	—	—	1–2	1–2 NPS–1						

Any sizes not indicated above are subject to special prices for which ask your supplier

No. 500
SOLID CIRCULAR STOCKS AND DIES
WITH GUIDES

PACKED IN STRONG CARDBOARD CARTONS



Each Set consists of:
One Die Stock
One Die to each size
One Guide to each size

*Actual Diameter 1.656″
in accordance with
B.S.S. 1813:1951

Favoured by all Electrical Contractors

Easy Start

Free Cutting

Produces Clean Full Thread in one cut

Neat Design

Well Finished

Light Weight

Robust and Simple construction

All parts interchangeable

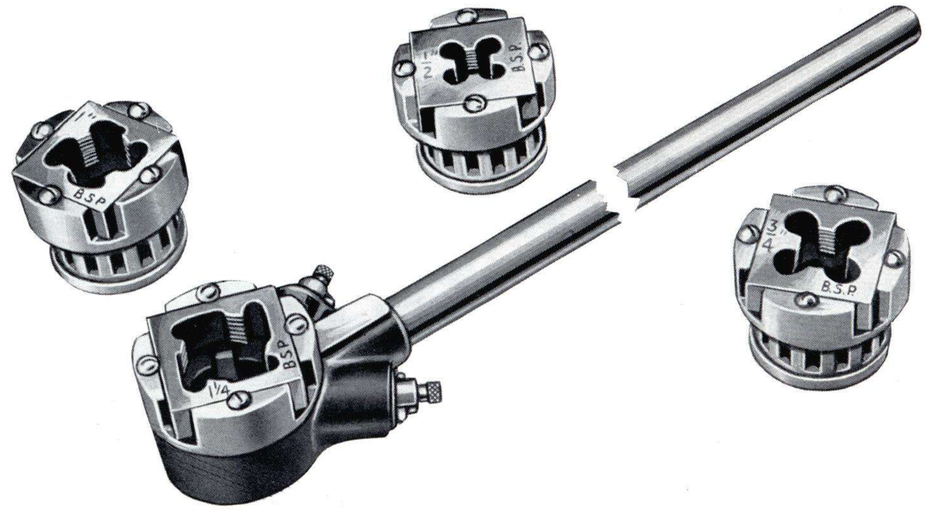
BRITISH STANDARD CONDUIT (B.S.CON.) ELECTRICAL

SET No.	SCREWING SIZES IN INCHES	Diameter of Die in Inches	Length of Stock in Inches	Symbol Letter of Stock
B/CON/1	½ ⅝ ¾	1 21/32*	16	B/CON
B/CON/2	⅝ ¾ 1			
B/CON/3	½ ⅝ ¾ 1			
D/CON/1	1¼ 1½	2½	29	D/CON
D/CON/2	1 1¼ 1½			
F/CON/1	1½ 2	3½	40	F/CON
F/CON/2	1½ 2 2½			
F/CON/3	2 2½			

BRITISH STANDARD PIPE (PARALLEL) B.S.P.

SET No.	SCREWING SIZES IN INCHES	Diameter of Die in Inches	Length of Stock in Inches	Symbol Letter of Stock
B/PIPE/1	⅛ ¼ ⅜	1 21/32*	16	B/PIPE
B/PIPE/2	¼ ⅜ ½			
B/PIPE/3	⅛ ¼ ⅜ ½			
D/PIPE/1	½ ¾ 1	2½	29	D/PIPE
D/PIPE/2	⅜ ½ ¾ 1			
D/PIPE/3	½ ⅝ ¾ 1			
D/PIPE/4	¼ ⅜ ½ ¾ 1			
F/PIPE/1	1 1¼ 1½	3½	40	F/PIPE
F/PIPE/2	¾ 1 1¼ 1½			

No. 196A
SOLID SQUARE RATCHET FRAMES, DIES AND GUIDES



RATCHET FRAME FITTED WITH SEPARATE DIE HOLDER DIE AND GUIDE FOR EACH SCREWING SIZE

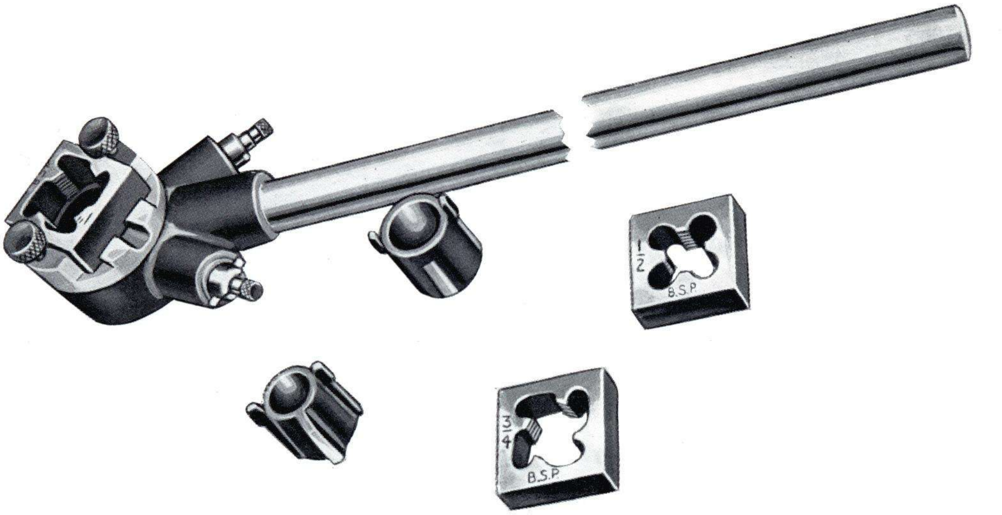
REMOVABLE HEAD TYPE

B.S. PIPE TAPER

SCREWING SIZES IN INCHES	Size of Square Dies in Inches	SYMBOL LETTERS AND NUMBERS			
		SET	Frames with Handles	DIES	Die Holders
$\frac{1}{2}$ $\frac{3}{4}$ 1	2x2	196A/1	196A/F1	196A/D1	196A/H1
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1	2x2	196A/2	196A/F1	196A/D1	196A/H1
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$	$2\frac{7}{16}$x$2\frac{7}{16}$	196A/3	196A/F2	196A/D2	196A/H2

Supplied in Cases if required

No. 196C
SOLID SQUARE RATCHET FRAMES, DIES AND GUIDES



RATCHET FRAME FITTED WITH SINGLE DIE HOLDER AND SEPARATE DIE AND GUIDE FOR EACH SCREWING SIZE

ADAPTOR PLATES
Can be supplied to be fitted to 4″ (196CH4) Dieholder to accommodate 2″ square Dies for smaller screwing sizes

Supplied in Cases if required

B.S. PIPE TAPER

SCREWING SIZES IN INCHES	Size of Square Dies in Inches	SYMBOL LETTERS AND NUMBERS					
		SET	Frame with Dieholder	Frames with Handles	DIES	Die Holders	Guides
$\frac{1}{2}$ $\frac{3}{4}$ 1	2x2	196C/1	196C/FH1	196C/F1	196C/D1	196C/H1	196C/G1
$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ 1	2x2	196C/2	196C/FH1	196C/F1	196C/D1	196C/H1	196C/G1
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$	$2\frac{7}{16}$x$2\frac{7}{16}$	196C/4	196C/FH3	196C/F3	196C/D3	196C/H3	196C/G3
$1\frac{1}{4}$ $1\frac{1}{2}$ 2	4x4	196C/5	196C/FH4	196C/F4	196C/D4	196C/H4	196C/G4
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2	4x4	196C/6	196C/FH4	196C/F4	196C/D4	196C/H4	196C/G4

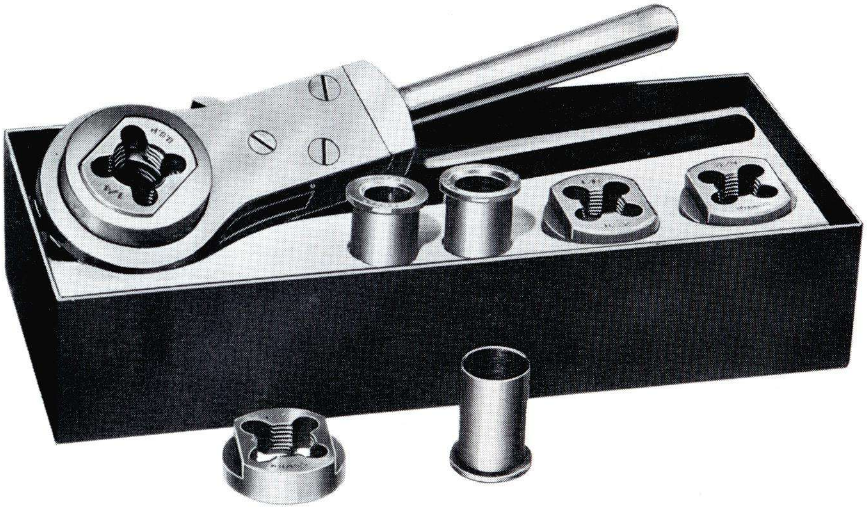
No. 296 & No. 395
RATCHET STOCKS, DIES AND GUIDES
DOUBLE ACTION WITH REVERSIBLE PAWL

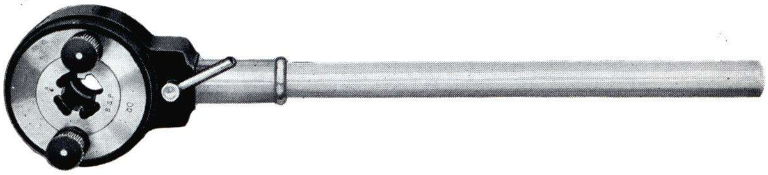
No. 296

MINI-RATCHET STANDARD 4-DIE SET
(as illustrated)

Contains:
1/8″ AND 1/4″ B.S. PIPE AND 3/8″ AND 1/2″ B.S. BRASS

1, 2 or 3 Die Sets can be supplied containing any combination of above sizes





No. 395

B.S. PIPE (PARALLEL) THREAD SOLID CIRCULAR TYPE
Double action with reversible pawl

Robust Construction for Heavy Duty

Produces clean, Full Thread with one cut

Well Finished

Knurled Set Pins for securing die

Reverse action by movement of small lever

Boss of Stock acts as largest size guide

SCREWING SIZES IN INCHES			SYMBOL LETTERS				
			Stock, Dies & Guides	Dies	Diameter of Dies Inches	Guides	Stock Only
		1/2	BR1	BR/D	1 21/32	BR/G	BR/S
	3/8	1/2	BR/2				
1/4	3/8	1/2	BR/3				
		1	DR/5	DR/D	2 1/2	DR/G	DR/S
	3/4	1	DR/6				
1/2	3/4	1	DR/7				
		1 1/4	ER/10	ER/D	3	ER/G	ER/S
	1	1 1/4	ER/11				
3/4	1	1 1/4	ER/12				
		1 1/2	FR/15	FR/D	3 1/2	FR/G	FR/S
	1 1/4	1 1/2	FR/16				
1	1 1/4	1 1/2	FR/17				
		2	GR/18	GR/D	4 3/32	GR/G	GR/S
	1 1/2	2	GR/19				
1 1/4	1 1/2	2	GR/20				

SECTION TWO

our guide to your selection of TAPS HEXAGON DIE NUTS TAP WRENCHES

TAPS
(Page 25)

We supply Taps manufactured from two types of steel

18% TUNGSTEN HIGH SPEED STEEL
BEST CAST ALLOY STEEL

both of which are closely controlled as to analysis and, what is equally important for these Tools, basic grain structure.

As regards accuracy, we manufacture by cutting or grinding the thread form in both the above qualities of steel. In either case closely controlled Heat Treatment Plant of our own design, in the hands of skilled men, ensures that the best performance is obtained from whichever grade is selected.

Although Cast Steel Taps are supplied, on occasion, with Ground Threads, and High Speed Steel Taps are supplied with Cut Threads, in the main, for all normal purposes, Taps are generally supplied either in:-

CAST STEEL CUT THREAD –
abbreviated to C.S.C.T.

HIGH SPEED STEEL GROUND THREAD –
abbreviated to H.S.S.G.T.

With the introduction of harder materials which require to be machined, there is an increasing tendency to use the more expensive High Speed Steel Ground Thread Taps. This is an economy where a reasonable standard of labour is available and where the tools can be used under conditions which ensure that the operative can hold the workpiece rigid and can operate the tool in the correct manner.

If, however, unskilled labour is likely to be used or the work is being carried out under bad conditions which may easily lead to the breakage, damage or loss of the tap, then, Cast Steel Cut Thread Taps give a perfectly adequate performance.

SECTION TWO

STANDARD TAPS
(Page 25)

When ORDERING TAPS of STANDARD TYPE the following details only are necessary:

1. **Quality C.S.C.T. or H.S.S.G.T.**
2. **Diameter**
3. **Pitch,** *i.e.* **B.S.W., B.S.F., etc., or T.P.I. and Form**
4. **Type,** *i.e.* **Hand Taps, Nut Taps, Spiral Point, etc.**
5. **Whether complete sets of 3 (Taper, Second and Bottoming) or 2, (Taper and Bottoming) or individual Taps of any of the 3 types of lead.**

Right Hand Tools are considered Standard, but a stock of Left Hand Tools in a restricted range is kept and if Left Hand are required, this should be clearly specified.

STANDARD THREADS AND PITCHES
(Page 25)

For references purposes.

SPIRAL POINT TAPS
(Page 25)

Efficient for tapping through-holes, for production runs. Cutting-face of first few threads ground is at an angle to send the curling chips forward to prevent clogging in the flutes. Flutes are not made as deep as usual as they are not required for passage of swarf and the resultant larger cross section gives increased strength. Less driving power is needed than is required for ordinary Taps.

SPIRAL FLUTE TAPS
(Page 25)

For tapping Blind-holes. Right Hand Spiral is used for Right Hand Threading. Large flute area allows swarf to be cleared from the holes and gives fast production. Shear cutting action allows freedom of cutting and reduces breakages.

NUT TAPS
(Page 25)

Made to Zone 3 and Zone 4 tolerances as B.S. 949/1951. Intended for tapping nuts in quantities – the shank being below core diameter allows the nuts, when tapped, to pass on to the shank and saves the withdrawal of the tap after tapping each nut.

SECTION TWO

SPECIAL TAPS
(Page 25 & 26)

When ordering special Taps in the absence of a drawing or sample, state the following:

Diameter
T.P.I.
Form
Right or Left Hand
Lead, T., S., or P.
Type of Tap – Hand, Nut, etc.
C.S.C.T. or H.S.S.G.T.
Overall Length
Thread Length
Shank Length
Shank Diameter
Size of Square
No. of Flutes
Depth of Thread to be tapped
Through or blind holes
Material to be tapped.

BOILER STAY TAPS
(Page 26)

Accuracy in this type of work is of great importance, therefore, Ground Thread Taps are strongly recommended.
On account of the high cost of labour involved in the production of these Taps, we suggest that it is more economical to use High Speed Steel Ground Thread. Where the Taps are for occasional use, however, Best Cast Steel Ground Thread type will prove satisfactory.

FULL DETAILS SHOULD BE SPECIFIED ON ALL ORDERS AND ENQUIRIES.

HOLLOW TAPS
(Page 26)

For tapping continuous threads in front and back plates of Marine Boilers.
Two Taps are mounted on a steel shaft with square end and secured by steel keys in the keyway of the shaft, so allowing the Taps to be accurately spaced to maintain the continuity of thread through the plates.
Stay Taps are occasionally required up to 17 feet long and to economise in High Speed Steel, Hollow Taps are preferable to Solid in such cases.

FULL DETAILS SHOULD BE SPECIFIED ON ALL ORDERS AND ENQUIRIES.

BOILER STAY HEXAGON DIE NUTS
(Page 26)

Used for the same purpose as Standard Hexagon Die Nuts for work on Boiler Stays.

STANDARD HEXAGON DIE NUTS
(Page 27)

Designed for correcting bruised and damaged threads and not for cutting new threads.
The remarks regarding the qualities of Taps apply equally to Hexagon Die Nuts.

SECTION TWO

TAP WRENCHES

(Page 27 & 28)

Price usually decides whether the light-weight pattern or the more robust standard pattern of adjustable Tap Wrench is ordered. For the smaller sizes in a range, the light-weight pattern is adequate, but for heavier work it is better to order the standard type particularly if usage is likely to be rough. The fixed solid tap wrenches are suitable for work where the wrenches are likely to be in contact with dirt and the weather which might adversely affect the screw mechanism of the adjustable type. Solid single ended Tap Wrenches are for use where it is not possible to gain access with a double handed wrench.

THREAD DATA

(Page 29)

The list of thread forms shown on this page indicates the difference between the American and British thread angles. Considerable confusion occurs due to the three different types in regular use, namely, A.N.C., N.C., and U.N.C. It should be understood that there is no difference between any of these designations in the range up to 1 inch, and above 1 inch the only difference is the depth of the thread which in these large sizes is generally unimportant. Unless some special reason is known to the contrary the three can be considered interchangeable.
Similar comments apply to A.N.F., N.F. and U.N.F.

CUTTING CHART

(Page 30)

Indicates a reasonable starting point for tapping conditions for new operations which may then be modified in the light of experience.

TAPPING OIL

(Page 30)

The use of correct coolant is very important in the production of clean efficient threads.

TAPPING DRILL SIZES

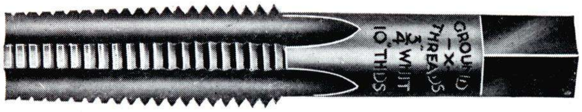
(Pages 31 & 32)

The British Standard Institute investigated the correct size of drill to use for various sizes of Taps and these pages give a summary of the information contained in this standard. Whereas the older operative tends to think that the tighter the thread, the more effective it is, this in actual fact is not the case, and users are strongly recommended to work with the specified drill size to obtain the best performance from Taps and the most effective form of thread.

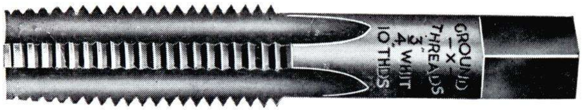
HAND TAPS

DESIGNATION :

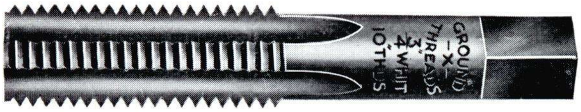
British:	*American:*
Taper	Taper
Second	Plug
Plug or Bottoming	Bottoming



Chamfer (or Lead) 4° each side — 8-10 threads



Chamfer (or Lead) 8° each side — 4-5 threads



Chamfer (or Lead) 23° each side — 1½ threads

THREAD TOLERANCE ZONES.

Unless specified to the contrary all our STANDARD Taps are supplied as under:

Ground Thread Taps, Hand	Zone 3
Ground Thread Taps Pearns and Nut (up to ½")	Zone 3
(over ½")	Zone 4
Cut Thread Taps, Standard	Zone 5

FINER GROUND THREAD TOLERANCES

Used only for Special Purpose Work are covered by Zones 1 and 2.

RANGES OF STANDARD SIZES OF SCREWING TAPS

BEST CAST STEEL CUT THREADS AND HIGH SPEED STEEL GROUND THREADS

Our price list shows the individual prices for all Standard types of Taps and in addition the following special purpose Taps can be supplied:

PULLEY
ACME
SQUARE
THIEL
MUD PLUG
SHORT NUT
BENT SHANK
(Rex Nichols, Ward, Etchells)
STRAIGHT TAPPER
TANDEM
SERIAL.

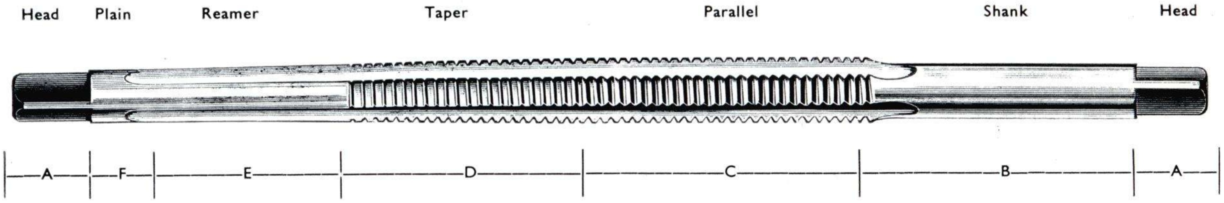
Type	Quality	B.S.W.	B.S.F.	B.A.	(A)N.C. & U.N.C.	(A)N.F. & U.N.F.	M/M	B.S.P. (Par'l.)	N.P.S.	B.S.P.T.	N.P.T.
HAND	CSCT	1/16–2	3/16–2	16–0	No. 1 –1½"	No. 0 –1½"	*1.7–5.5 6–39	1/8–2	1/8–2	1/8–2	1/8–2
	HSSGT	1/8–2	3/16–2	14–0	No. 1 –1½"	No. 0 –1½"	*1.7–5.5 6–39	1/8–2	1/8–2	1/8–2	1/16–2
NUT	CSCT	1/8–1¼	3/16–1¼	6–0	No. 4 –1¼"	No. 4 –1¼"	*3–5 6–24				
	HSSGT	1/8–1	3/16–1"	8–0	No. 4 –1"	No. 4 –1"	*2.2–5 6–24				
SPIRAL POINT	CSCT	1/8–1	3/16–1	12–0	No. 4 –1"	No. 4 –1"	*3–5.5 6–12				
	HSSGT	1/8–1	3/16–1	10–0	No. 1 –1"	No. 0 –1"	*3–5.5 6–24	1/8–3/4			
SPIRAL FLUTE	HSSGT	1/8–1	3/16–1	6–0	No. 4 –1"	No. 4 –1"	*3–5.5 6–24	1/8–3/4			
PEARNS A or I	CSCT HSSGT	1/4–3/4 1/4–3/4	1/4–3/4 1/4–3/4		1/4–3/4 1/4–3/4	1/4–3/4 1/4–3/4		1/8–1/2 1/8–1/2			
PEARNS B or 2	CSCT HSSGT	3/8–1 3/8–1	3/8–1 3/8–1		3/8–1 3/8–1	3/8–1 3/8–1		1/8–3/4 1/8–3/4			
Type	**Quality**	**B.S. Con.**	**B.S. Con. Socket**	**B.S.B.**	**B.S.Cy.**	**B.S.Cy. Double Ended**	**M.E.**	**N.S.**	**Spark Plug**		
HAND	CSCT	1/2–2	1/2–2	1/4–1	3/16–9/16 & 1.370	9/16 & 1.370	1/8–3/8	1/16–1	10-18 m/m		
	HSSGT	1/2–1		1/4–1					10-18 m/m		

**When Ordering M/M TAPS within these ranges please signify whether FRENCH SERIES or GERMAN (DIN) is required.*

No. 316

BOILER STAY TAPS

MADE IN **BEST CAST STEEL CUT OR GROUND THREADS**
HIGH SPEED STEEL GROUND RELIEVED THREADS



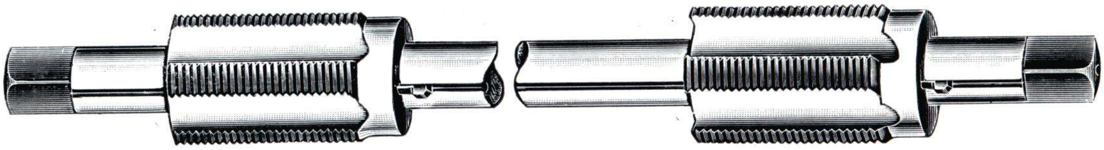
It is MOST ESSENTIAL *that all dimensions indicated by* LETTERS A, B, C, D, E, F, A, *are* DEFINITELY SPECIFIED *on all orders and enquiries.*

We manufacture all types of Stay Taps (including the single ended type with square at one end only). Many years experience in the manufacture of these tools has gained us a vast technical knowledge which qualifies us to advise or assist you should you so desire.

No. 317

HOLLOW TAPS FOR VARIOUS TYPES OF BOILERS

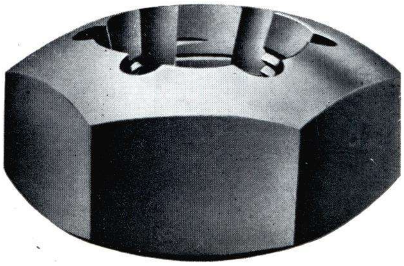
MADE IN **BEST CAST STEEL CUT OR GROUND THREADS**
HIGH SPEED STEEL GROUND RELIEVED THEADS



With your orders and enquiries it is IMPERATIVE *that the* ESSENTIAL *dimensions are specified, namely:*

(*a*) Diameter of Thread
(*b*) Number of Threads per inch
(*c*) Form of Thread, Whitworth or American
(*d*) Length overall
(e) Inside Diameter of Tap or Diameter of Shaft (*specify tolerances*)
(*f*) Taper or Parallel Hole (*specify tolerances*)
(*g*) Size of Keyway
(*h*) Lead – if required

We are able also to supply Steel Shafts (if required). Please specify:
(*a*) Length overall (*b*) Diameter (c) Size(s) of Squares (*d*) Size of Keyway



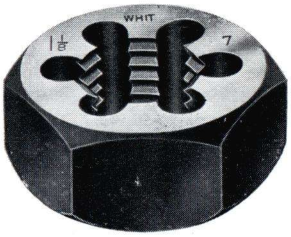
No. 319

BOILER STAY HEXAGON DIE NUTS

BEST CAST STEEL

Can be supplied with Flat or Rounded Faces (which please specify) in sizes from $\frac{3}{4}$ inch to 3 inch Diameter Screwing Sizes, with 8, 9, 10, 11, 12, 14 or 16 Threads per inch (Whitworth Form).

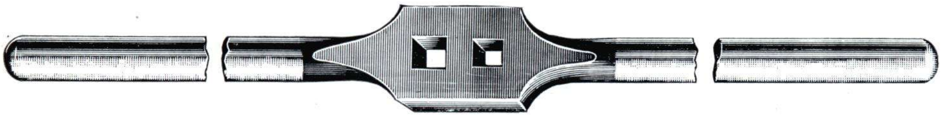
No. 320
RANGES OF STANDARD SIZES OF HEXAGON DIE NUTS
BEST CAST STEEL CUT THREADS AND HIGH SPEED STEEL GROUND THREADS



	B.S.W.	B.S.F.	(A)N.C. U.N.C.	(A)N.F. U.N.F.	B.A.	M/M	B.S. Pipe	B.S. Con.	B.S.B.
CSCT	⅛–2	3/16–2	No. 4 –1½″	No. 4 –1½″	6–0	6–33	⅛–2	½–2	⅛–1
HSSGT	⅛–2	3/16–2	No. 4 –1½″	No. 4 –1½″	6–0	6–24	⅛–1½		

Types of Tools outside these ranges are designated "Specials"

DOUBLE HANDED SOLID TAP WRENCHES
HEAVY ANVIL FORGED



No. 329

For
B.S.W. AND B.S.F.
Taps

No. 330

For
B.S. PIPE
Taps

	SIZES IN INCHES				
For Taps	—	¼ 5/16 ⅜ 7/16	¼ 5/16 ⅜ 7/16 ½	½ 9/16 ⅝	½ ⅝ ¾
Symbol	—	329/1	329/2	329/3	329/4
For Taps	⅝ ¾ ⅞ 1	1 1⅛ 1¼	1¼ 1⅜ 1½	1½ 1⅝ 1¾	1¾ 1⅞ 2
Symbol	329/5	329/6	329/7	329/8	329/9
For Taps	⅛ ¼ ⅜	¼ ⅜ ½	⅜ ½ ¾	½ ¾ 1	¾ 1 1¼
Symbol	330/15	330/16	330/17	330/18	330/19
For Taps	1 1¼ 1½	1¼ 1½ 2	1½ 1¾ 2	2 2½ 3	—
Symbol	330/20	330/21	330/22	330/23	—

No. 331
SINGLE ENDED SOLID TAP WRENCHES

For
B.S.W. AND B.S.F.
Taps

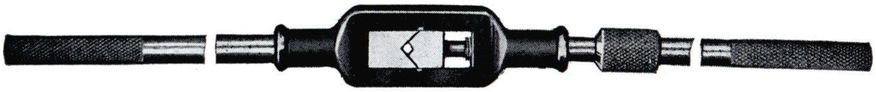
	SIZES IN INCHES						
For Taps	¼	5/16	⅜	7/16	½	⅝	¾
Symbol	331/1	331/2	331/3	331/4	331/5	331/6	331/7
For Taps	⅞	1	1⅛	1¼	1⅜	1½	—
Symbol	331/8	331/9	331/10	331/11	331/12	331/13	—

ADJUSTABLE TAP WRENCHES

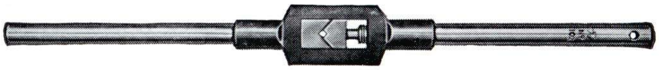
WITH TOUGHENED STEEL JAWS, WELL BALANCED AND FINISHED.

No. 601 **A.1. to A.5.**

No. 601 **A.6. to A.8.**



No. 602 **Lighter Type**



No. 602 **Bar Type**

No. 601

A.1. to A.5.
Adjustment is made by means of the handle.

A.6. to A.8.
Adjustment is made by turning knurled sleeve.

Symbol	RANGE IN INCHES							
	A1	A2	A3	A4	A5	A6	A7	A8
For Bolt Taps	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{16}-\frac{7}{16}$	$\frac{3}{16}-\frac{9}{16}$	$\frac{1}{4}-\frac{3}{4}$	$\frac{1}{2}-1$	$\frac{3}{4}-1\frac{1}{4}$	$\frac{3}{4}-1\frac{1}{2}$	$1-2\frac{5}{8}$
For B.S.P. Taps	—	$\frac{1}{8}$	$\frac{1}{8}-\frac{1}{4}$	$\frac{1}{4}-\frac{3}{8}$	$\frac{3}{8}-\frac{3}{4}$	$\frac{1}{2}-1$	$\frac{3}{4}-1\frac{1}{4}$	$1\frac{1}{2}-2\frac{3}{4}$
For Hand Reamers	$\frac{1}{8}-\frac{1}{4}$	—	$\frac{3}{16}-\frac{13}{32}$	$\frac{3}{16}-\frac{9}{16}$	$\frac{3}{8}-\frac{13}{16}$	—	$\frac{5}{8}-1\frac{3}{16}$	—

No. 602

LIGHTER TYPE
Adjustment is made by means of the handle.

Symbol	RANGE IN INCHES							
	TWO	TWOA	TW1	TW2	TW3	TW4	TW5	TW6
For Bolt Taps	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{16}-\frac{3}{8}$	$\frac{1}{8}-\frac{1}{2}$	$\frac{1}{4}-\frac{3}{4}$	$\frac{3}{8}-1$	$\frac{3}{4}-1\frac{1}{2}$	$1-2$	$1\frac{1}{4}-2\frac{1}{2}$
For B.S.P. Taps	—	$\frac{1}{8}$	$\frac{1}{8}-\frac{1}{4}$	$\frac{1}{8}-\frac{3}{8}$	$\frac{1}{8}-\frac{5}{8}$	$\frac{3}{8}-1\frac{1}{4}$	$\frac{1}{2}-2$	$1-2\frac{1}{2}$
For Hand Reamers	$\frac{1}{4}-\frac{1}{8}$	—	$\frac{3}{16}-\frac{13}{32}$	$\frac{3}{16}-\frac{9}{16}$	$\frac{5}{16}-\frac{13}{16}$	$\frac{5}{8}-1\frac{3}{16}$	$1\frac{3}{16}-1\frac{5}{8}$	$1\frac{3}{16}-2$

No. 602

BAR TYPE
Cheaper type
for small hand Taps.

RANGE IN INCHES		Symbol
For Taps	Length	
$\frac{1}{16}-\frac{1}{4}$	$4\frac{1}{2}$	TWA
$\frac{1}{4}-\frac{1}{2}$	$5\frac{1}{2}$	TWB

SAVE TIME and MONEY by ordering STANDARD TOOLS wherever possible

THREAD DATA.
STANDARD THREADS AND PITCHES.

DESIGNATIONS, ABBREVIATIONS AND THREAD ANGLES.

	Abbreviation	Thread Angle
British Association Hand	B.A.	47½°
British Association Post Office Pattern	B.A. (P.O.Patt.)	47½°
British Standard Whitworth	B.S.W.	55°
British Standard Fine	B.S.F.	55°
(American) National Coarse (formerly U.S.S.)	(A)N.C.	60°
(American) National Fine (formerly S.A.E. and A.S.M.E.)	(A)N.F.	60°
Unified Coarse	U.N.C.	60°
Unified Fine	U.N.F.	60°
British Standard Pipe (Parallel)	B.S.P.	55°
American National Straight Pipe	N.P.S.	60°

	Abbreviation	Thread Angle
British Standard Pipe (Conical)	B.S.P.T.	55°
American National Taper Pipe	N.P.T.	60°
British Standard Cycle	B.S.Cy.	60°
Double Ended Cycle		60°
British Standard Brass	Brass (B.S.B.)	55°
British Standard Conduit	B.S.Con.	55°
Model Engineers	M.E.	55°
Sparking Plug	Spark Plug	60°
Metric – French and German (Din.) Series		60°
Systeme Internationale	S.I.	60°
Metric Form Special Fine Pitch		60°

STANDARD THREADS AND PITCHES

Nominal Dia. Inches	B.S.W.	B.S.F.	U.N.C. and N.C.	U.N.F. and N.F.	B.S.P. and B.S.P.T.	N.P.S. and N.P.T.	B.S. Cy.	BRASS	B.S.Con.	M.E.	Nominal Dia. MM.	French Series	D.I.N. Stand.	S.I.	Spark Plug	Size No.	B.A.
$\frac{1}{16}$	60	—	—	—	—	27	—	—	—	—	2.0	0.4	0.4	—	—	16	133.3
$\frac{3}{32}$	48	—	—	—	—	—	—	—	—	—	2.0	0.45	—	—	—	15	120.5
$\frac{1}{8}$	40	—	—	—	28	27	40	—	—	40	2.2	0.45	—	—	—	14	109.9
$\frac{5}{32}$	32	—	—	—	—	—	32	—	—	40	2.3	—	0.4	—	—	13	102.0
$\frac{3}{16}$	24	32	—	—	—	—	32	—	—	40	2.5	0.45	—	—	—	12	90.9
$\frac{7}{32}$	24	28	—	—	—	—	26	—	—	40	2.6	—	0.45	—	—	11	81.9
$\frac{1}{4}$	20	26	20	28	19	18	26	26	—	40	3.0	0.6	0.5	—	—	10	72.6
17/64	—	—	—	—	—	—	26	—	—	—	3.5	—	0.6	—	—	9	65.1
$\frac{9}{32}$	20	26	—	—	—	—	26	—	—	32	4.0	0.75	0.7	—	—	8	59.1
$\frac{5}{16}$	18	22	18	24	—	—	26	26	—	32	4.5	—	0.75	—	—	7	52.9
$\frac{3}{8}$	16	20	16	24	19	18	26	26	—	32	5.0	0.9	0.8	—	—	6	47.9
$\frac{7}{16}$	14	18	14	20	—	—	26	26	—	26	5.5	—	0.9	—	—	5	43.0
$\frac{1}{2}$	12	16	13	20	14	14	26	26	18	26	6.0	—	—	1.0	—	4	38.5
$\frac{9}{16}$	12	16	12	18	—	—	26 or 20	26	—	—	7.0	—	—	1.0	—	3	34.8
$\frac{5}{8}$	11	14	11	18	14	—	26	26	18	—	8.0	—	—	1.25	—	2	31.4
$\frac{11}{16}$	11	14	—	—	—	—	26	26	—	—	9.0	—	—	1.25	—	1	28.2
$\frac{3}{4}$	10	12	10	16	14	14	26	26	16	—	10.0	—	—	1.5	1.0	0	25.4
$\frac{13}{16}$	10	12	—	—	—	—	—	—	—	—	11.0	—	—	1.5	—		
$\frac{7}{8}$	9	11	9	14	14	—	24	26	—	—	12.0	—	—	1.75	1.25		
$\frac{15}{16}$	9	11	—	—	—	—	—	—	—	—	14.0	—	—	2.0	1.25	No.	N.C.
$\frac{31}{32}$	—	—	—	—	—	—	30	—	—	—	16.0	—	—	2.0	—		
1	8	10	8	12	11	11½	24	26	16	—	18.0	—	—	2.5	1.5	1	64
$1\frac{1}{8}$	7	9	7	12	—	—	26	26	—	—	20.0	—	—	2.5	—	2	56
$1\frac{1}{4}$	7	9	7	12	11	11½	—	26	16	—	22.0	—	—	2.5	—	3	48
1.290	—	—	—	—	—	—	24	—	—	—	24.0	—	—	3.0	—	4	40
1.370	—	—	—	—	—	—	24	—	—	—	27.0	—	—	3.0	—	5	40
$1\frac{3}{8}$	6	8	6	12	—	—	—	—	—	—	30.0	—	—	3.5	—	6	32
1.450	—	—	—	—	—	—	26	—	—	—	33.0	—	—	3.5	—	8	32
$1\frac{1}{2}$	6	8	6	12	11	11½	—	26	14	—	36.0	—	—	4.0	—	10	24
$1\frac{9}{16}$	—	—	—	—	—	—	24	—	—	—	39.0	—	—	4.0	—	12	24
$1\frac{5}{8}$	5	8	—	—	—	—	24	26	—	—	42.0	—	—	4.5	—		
$1\frac{3}{4}$	5	7	5	—	†11	—	—	26	—	—	45.0	—	—	4.5	—		N.F.
$1\frac{7}{8}$	4½	7	—	—	—	—	—	26	—	—	48.0	—	—	5.0	—	0	80
2	4½	7	4½	—	11	11½	—	26	14	—	52.0	—	—	5.0	—	1	72
$2\frac{1}{4}$	4	6	*4½	—	11	—	—	—	—	—	56.0	—	—	5.5	—	2	64
$2\frac{1}{2}$	4	6	*4	—	11	8	—	—	14	—	60.0	—	—	5.5	—	3	56
$2\frac{3}{4}$	3½	6	*4	—	†11	—	—	—	—	—	—	—	—	—	—	4	48
3	3½	5	*4	—	11	8	—	—	—	—	—	—	—	—	—	5	44
$3\frac{1}{4}$	3¼	5	*4	—	†11	—	—	—	—	—	—	—	—	—	—	6	40
$3\frac{1}{2}$	3¼	4½	*4	—	11	8	—	—	—	—	—	—	—	—	—	8	36
$3\frac{3}{4}$	3	4½	*4	—	†11	—	—	—	—	—	—	—	—	—	—	10	32
4	3	4½	*4	—	11	8	—	—	—	—	—	—	—	—	—	12	28

*U.N.C. only

†B.S.P only

HALL'S TAPPING OIL

FOR ALL SCREWING AND THREADING OPERATIONS.

Ensures the smoothest possible threads with the greatest ease when TAPPING, SCREWING or CHASING.

Now available in the following containers:

1 Pint Tins

1 Quart Tins

1 Gallon Tins

5 Gallon Drums.

For the production of clean, smooth and accurate threads when using Taps, Dies, Die Nuts and Chasers, an oil prepared only for screwing must be used.

The use of screwing tackle either dry or with any oil which happens to be handy is the most common source of dissatisfaction. The threads produced will be rough, torn and distorted, also the tools will be damaged. The pressure of dry working causes fragments of metal to be impacted into the threads of the tools which will then produce torn, rough and stripped threads. The tools will be overstrained and cutting edges chipped.

A special screwing oil must contain an extra-high-pressure lubricant which will penetrate the work yet have sufficient body to remain on the cutting edges of the tools.

HALL'S TAPPING OIL is prepared solely for screwing and tapping and contains the necessary high proportion of extra-high-pressure natural fats and waxes.

HALL'S TAPPING OIL has sufficient body to keep it on the work and tools all the time they are cutting.

HALL'S TAPPING OIL is a lubricant which will halve the effort needed for hand or machine screwing.

MACHINE TAPPING CHART

HALL'S TAPPING OIL is suitable for all materials shown except the softer types of Aluminium, Brass, Bronze, Copper and Cast Iron.

Material to be Tapped	Lubricant	Speeds in Feet per Minute		Cutting Angle (Rake)
		C.S.	H.S.S.	
ALUMINIUM	Paraffin or Paraffin and Lard Oil	45–50	80–100	12°–15°
ALUMINIUM, Die Cast	Paraffin or Paraffin and Lard Oil	20–30	50–70	12°–15°
BRASS	Soluble or Light Base Oil	45–50	85–120	Radial to 5°
BRONZE	Paraffin and Lard Oil	*	40–60	7°
COPPER	Paraffin and Lard Oil	30–45	90–100	15°–18°
IRON, Cast	Dry or Light Soluble Oil	*	70–80	Radial to 5°
IRON, Malleable	Soluble Oil	*	30–40	7°–10°
MONEL METAL	Sulphur Base Oil or Paraffin and Lard Oil	*	20–25	7°–10°
NICKEL SILVER	Sulphur Base Oil	*	75–85	7°–10°
PLASTIC MATERIALS	Dry or Cold Water	† 20–30	50–75	12°
STEEL, Cast	Sulphur Base Oil	*	25–30	10°–15°
Chrome	Sulphur Base Oil	*	10–25	10°–15°
Mild	Sulphur Base Oil	20–30	40–60	5°–7°
Manganese	Sulphur Base Oil	*	10–15	10°–15°
Molybdenum	Sulphur Base Oil	*	15–25	10°–15°
Nickel	Sulphur Base Oil	*	20–30	7°–15°
Stainless	Sulphur Base Oil	*	10–25	7°–12°
Tungsten	Sulphur Base Oil	*	20–30	5°–15°
Vanadium	Sulphur Base Oil	*	25–35	7°–15°

**Carbon Steel not advised.*

†Carbon Steel Cut Thread more suitable for Plastics.

TAPPING DRILL SIZES

FOR BRITISH STANDARD THREADS

BRITISH ASSOCIATION (B.A.)

Size Number	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
12	90.9	1.05 mm.
11	81.9	1.2 mm.
10	72.6	1.4 mm.
9	65.1	1.55 mm.
8	59.1	1.8 mm.
7	52.9	2.05 mm.
6	47.9	2.3 mm.
5	43.0	2.65 mm.
4	38.5	3.0 mm.
3	34.8	3.45 mm.
2	31.4	4.0 mm.
1	28.2	4.5 mm.
0	25.4	5.1 mm.

BRITISH STANDARD PIPE (Parallel) (B.S.P.)

Nominal Diameter of Thread	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
inches		
$\frac{1}{8}$	28	8.75 mm.
$\frac{1}{4}$	19	11.8 mm.
$\frac{3}{8}$	19	15.25 mm.
$\frac{1}{2}$	14	$\frac{3}{4}$ in.
$\frac{5}{8}$	14	$\frac{53}{64}$ in.
$\frac{3}{4}$	14	24.5 mm.
$\frac{7}{8}$	14	28.25 mm.
1	11	30.75 mm.
$1\frac{1}{4}$	11	39.5 mm.
$1\frac{1}{2}$	11	$1\frac{25}{32}$ in.
$1\frac{3}{4}$	11	51.0 mm.
2	11	$2\frac{1}{4}$ in.

BRITISH STANDARD WHITWORTH (B.S.W.)

Nominal Diameter of Thread	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
inches		
$\frac{1}{8}$	40	2.55 mm.
$\frac{3}{16}$	24	3.7 mm.
$\frac{1}{4}$	20	5.1 mm.
$\frac{5}{16}$	18	6.5 mm.
$\frac{3}{8}$	16	$\frac{5}{16}$ in.
$\frac{7}{16}$	14	9.25 mm.
$\frac{1}{2}$	12	10.5 mm.
$\frac{9}{16}$	12	12.1 mm.
$\frac{5}{8}$	11	13.5 mm.
$\frac{11}{16}$	11	—
$\frac{3}{4}$	10	$\frac{41}{64}$ in.
$\frac{7}{8}$	9	19.25 mm.
1	8	22.0 mm.
$1\frac{1}{8}$	7	24.75 mm.
$1\frac{1}{4}$	7	$1\frac{3}{32}$ in.
$1\frac{1}{2}$	6	33.5 mm.
$1\frac{3}{4}$	5	39.9 mm.
2	$4\frac{1}{2}$	44.5 mm.
—	—	—

BRITISH STANDARD FINE (B.S.F.)

Nominal Diameter of Thread	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
inches		
$\frac{3}{16}$	32	$\frac{5}{32}$ in.
$\frac{7}{32}$	28	4.65 mm.
$\frac{1}{4}$	26	5.3 mm.
$\frac{9}{32}$	26	—
$\frac{5}{16}$	22	6.75 mm.
$\frac{3}{8}$	20	8.25 mm.
$\frac{7}{16}$	18	9.7 mm.
$\frac{1}{2}$	16	$\frac{7}{16}$ in.
$\frac{9}{16}$	16	$\frac{1}{2}$ in.
$\frac{5}{8}$	14	14.0 mm.
$\frac{11}{16}$	14	—
$\frac{3}{4}$	12	16.75 mm.
$\frac{13}{16}$	12	—
$\frac{7}{8}$	11	$\frac{25}{32}$ in.
1	10	22.75 mm.
$1\frac{1}{8}$	9	25.5 mm.
$1\frac{1}{4}$	9	28.75 mm.
$1\frac{3}{8}$	8	31.5 mm.
$1\frac{1}{2}$	8	$1\frac{23}{64}$ in.

TAPPING DRILL SIZES

FOR SYSTEME INTERNATIONALE AND AMERICAN STANDARD THREADS

SYSTEME INTERNATIONALE (S.I.)

Nominal Diameter of Thread	Pitch	Drill Sizes to B.S. 1157:1953	Nominal Diameter of Thread	Pitch	Drill Sizes to B.S. 1157:1953
mm.	mm.		m.m.	m.m.	
6	1.0	5.0 mm.	22	2.5	$\frac{49}{64}$ in.
7	1.0	6.0 mm.	24	3.0	21.0 mm.
8	1.25	$\frac{17}{64}$ in.	27	3.0	24.0 mm.
9	1.25	7.7 mm.	30	3.5	26.5 mm.
10	1.5	8.4 mm.	33	3.5	29.5 mm.
11	1.5	9.5 mm.	36	4.0	32.0 mm.
12	1.75	10.25 mm.	39	4.0	35.0 mm.
14	2.0	12.0 mm.	42	4.5	37.5 mm.
16	2.0	$\frac{35}{64}$ in.	45	4.5	40.5 mm.
18	2.5	$\frac{39}{64}$ in.	48	5.0	43.0 mm.
20	2.5	$\frac{11}{16}$ in.	52	5.0	47.0 mm.

NATIONAL COARSE U.N.C:(A)N.C.

Nominal Diameter of Thread	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
Number		
—	—	—
1	64	1.55 mm.
2	56	1.85 mm.
3	48	2.1 mm.
4	40	2.35 mm.
5	40	2.65 mm.
6	32	2.85 mm.
8	32	3.5 mm.
10	24	3.9 mm.
12	24	4.55 mm.
Inches		
$\frac{1}{4}$	28	5.5 mm.
$\frac{5}{16}$	24	6.9 mm.
$\frac{3}{8}$	24	8.5 mm.
$\frac{7}{16}$	20	9.9 mm.
$\frac{1}{2}$	20	11.4 mm.
$\frac{9}{16}$	18	12.9 mm.
$\frac{5}{8}$	18	14.5 mm.
$\frac{3}{4}$	16	$\frac{11}{16}$ in.
$\frac{7}{8}$	14	0.804 in.
1	12	23.25 mm.
$1\frac{1}{8}$	12	26.5 mm.
$1\frac{1}{4}$	12	29.5 mm.
$1\frac{3}{8}$	12	1.290 in.
$1\frac{1}{2}$	12	36.0 mm.
—	—	—
—	—	—

NATIONAL FINE U.N.F:(A)N.F.

Nominal Diameter of Thread	Number of Threads per Inch	Drill Sizes to B.S. 1157:1953
Number		
0	80	1.25 mm.
1	72	1.6 mm.
2	64	1.9 mm.
3	56	2.15 mm.
4	48	2.4 mm.
5	44	2.7 mm.
6	40	2.95 mm.
8	36	3.55 mm.
10	32	4.1 mm.
12	28	4.65 mm.
Inches		
$\frac{1}{4}$	20	5.2 mm.
$\frac{5}{16}$	18	6.6 mm.
$\frac{3}{8}$	16	8.0 mm.
$\frac{7}{16}$	14	9.4 mm.
$\frac{1}{2}$	13	10.8 mm.
$\frac{9}{16}$	12	12.25 mm.
$\frac{5}{8}$	11	13.5 mm.
$\frac{3}{4}$	10	16.5 mm.
$\frac{7}{8}$	9	$\frac{49}{64}$in.
1	8	22.25 mm.
$1\frac{1}{8}$	7	$\frac{63}{64}$ in.
$1\frac{1}{4}$	7	$1\frac{7}{64}$ in.
$1\frac{3}{8}$	6	30.75 mm.
$1\frac{1}{2}$	6	$1\frac{21}{64}$ in.
$1\frac{3}{4}$	5	$1\frac{35}{64}$ in.
2	$4\frac{1}{2}$	$1\frac{25}{32}$ in.

SECTION THREE

our guide to your selection of BRACES, LEVERS and other Engineers' accessories

ENGINEERS' RATCHET BRACES
(Pages 35-37)

The Engineer who has used these tools will readily appreciate the decided advantages of our PATENT TOTALLY ENCLOSED Types Nos. 345, 346, 347 and 347MS when working in the open or under dirty conditions; particularly on outside Constructional or Boiler work, etc. The easy action of an unclogged mechanism greatly reduces the time and effort taken to do the work and the life of the tools is trouble-free and greatly in excess of the open type.

The choice between the varying lengths of head depends on the job in hand, but both long and short head type should be included in the standard equipment for fitters on all outside structural work, mines, ships, railways, gasworks, and other public utilities.

The No. 350 is specially designed for use in the repair or modification of commercial vehicles, particularly when this must be undertaken under conditions where power is not readily available.

RATCHET LEVERS AND WRENCHES
(Page 38)

The illustrations and notes are self-explanatory, Numbers 334 and 335 being the types most suitable for heavy duty work. Modified forms can be manufactured to order to meet special requirements, e.g., 334 Lever can be supplied with the arm cranked at right angles.

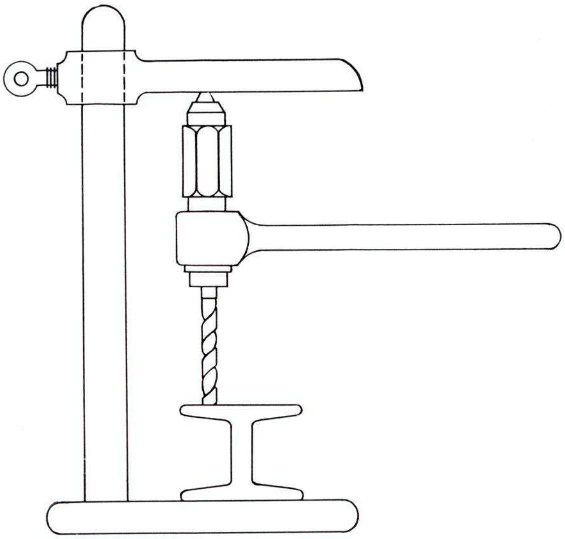
DRIFTS
(Page 37)

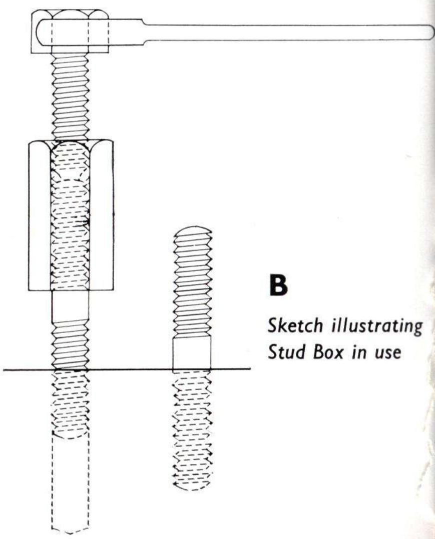
Both normal Taper Drifts and Barrel Drifts, as required for use when lining platework for boilers and constructional steelwork prior to rivetting, are listed.

SECTION THREE

A

Sketch showing a Drilling Pillar and Ratchet Brace in use on a Girder Section.





B

Sketch illustrating Stud Box in use

CROCODILE PIPE WRENCHES
(*Page 39*)

These are more convenient than other forms of pipe grip, in some circumstances, and their use may be likened to the advantages to be gained from a Fixed Spanner as compared with an Adjustable Spanner.

DRILLING PILLARS
(*Page 39*)

This equipment is generally used in conjunction with Ratchet Braces under circumstances which preclude the Ratchet operating from an adjacent structural member. (*See Sketch A*). The underside of the pillar arm is dimpled along its length to provide a seating for the feed screw of the Brace.

STUD SETTING BOXES
(*Page 40*)

Brought out originally for use when building new machines and equipment, these tools are becoming very popular with Engineers responsible for maintenance, for use by their fitters when replacing worn or broken studs. The use of a Stillson may mean damage to the stud and such damage could often cause trouble at later assembly, particularly if an air or oil-tight joint is required. (*See Sketch B*). Due to their design, and being toughened, no damage can occur to the thread, as is occasioned by the malpractice of locking together two nuts for this purpose.

BOILER CRAMPS
(*Page 40*)

Used for the clamping of Boiler Plates or similar work of a particularly heavy nature, where a deep throat, as indicated in our chart, is required.

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SECTION FOUR

our guide to your selection of PIPE FITTERS TAPS AND REAMERS

REPAIRMAN'S REAMERS (*Page 42*)	Used primarily for repair jobs where a quick way of enlarging a hole by hand is required. Their slow taper design makes them useful for de-burring small bore pipes. A tool which should be in regular use by Machine Tool Fitters, Motor Mechanics, etc., for work where failure to remove burrs completely can lead to an accumulation of dirt, with the consequent breakdown of a vital system.
PIPE BURRING REAMERS (*Page 42*)	These are, in effect, a larger type of Repairman's Reamer, but as they are intended both to de-burr and to create a lead for tapping, they are produced in the most efficient Reamer form, *i.e.*, Left Hand Spiral, Right Hand Cutting, which obviates the chatter which occurs when using the straight flute pattern. There is no British Standard for these Reamers, and it will be found that the range covered by the Hall Reamers is the widest of all types manufactured. This tool can also be used as a Countersink or for operation on heavy gauge material in place of a hole saw.
COMBINED DRILLS AND TAPS (*Page 43*)	These tools are designed for the production of threaded union holes in pipe work for branch lines or to carry out repairs by plugging, the No. 311 being suitable for dead pipes, and the Roscoe Shank for use when under pressure from Gas, Water or other fluid, in conjunction with a Central Action Drill Stand. The use of the Detachable Cup Drills considerably prolongs the life of these tools, as the drilling portion is subject to much heavier wear than the tapping portion.
GAS FITTERS' REAMERS (*Page 44*)	These Reamers are used for preparing tube internally without threading to produce a perfect internal taper to mate with externally taper-rolled pipe. It is also used in first class pipe fitting to ensure accurate threads on subsequent tapping and is particularly important where gases under pressure are involved and where B.S.P.(T.) threading is required. The various shank types are listed.
GAS MAINS TAPS (*Page 44*)	Designed to give an accurate taper threaded hole in Gas Mains. The collar prevents the tap accidentally dropping into the main.

REPAIRMAN'S AND BURRING REAMERS

No. 266
REPAIRMAN'S REAMERS

BEST CAST STEEL.

BIT STOCK SHANKS.

Specially adaptable for Garage Work.

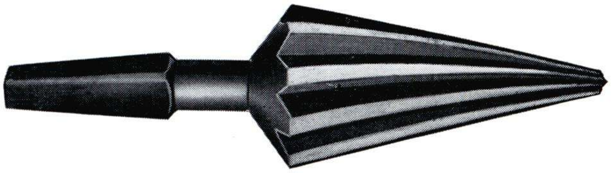
No.	5	6
Tapering	1/8″ to 1/2″	3/8″ to 1″

No. 267
PIPE BURRING REAMERS

BEST CAST STEEL.

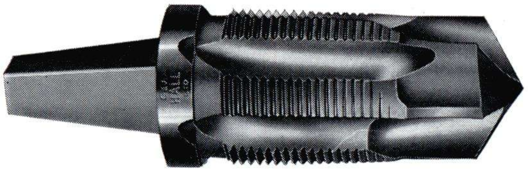
LEFT HAND SPIRAL (HELICAL) FLUTES.

RIGHT HAND CUTTING.

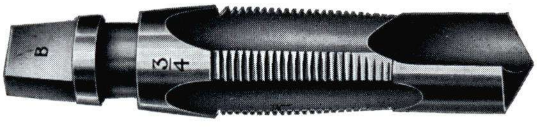


No.	1	2	3	4	5	6	7
Bore of Pipe	1/8″ to 1/2″	1/8″ to 1″	1/4″ to 1 1/4″	1/4″ to 1 1/4	1/4″ to 1 1/2″	1/4″ to 2″	1/4″ to 2″
Type of Shank	Bit Stock	Bit Stock	No. 3 Bit Stock or No. 3A T Handle	1/2″ Round Parallel	Bit Stock	Bit Stock	T Handle
Diameter at Top of Reamer	3/4″	1 5/16″	1 1/2″	1 9/16″	1 13/16″	2 5/16″	2 5/16″
Length of Flutes	1 7/16″	2 3/8″	2 5/16″	2 3/8″	2 3/8″	3 7/8″	3 7/8″
Overall Length	3 1/2″	4 7/16″	4 5/8″	4 5/8″	4 5/8″	6 3/8″	6 1/8″
No. of Flutes	6	8	8	8	8	10	10

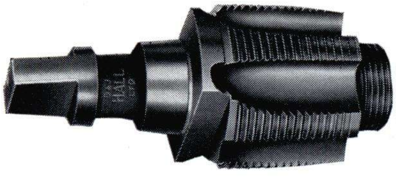
COMBINED DRILLS AND TAPS



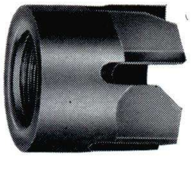
No. 311



No. 311A



No. 311B



No. 311C

B.S. PIPE (PARALLEL) COMBINED DRILLS AND TAPS

No. 311

TAPER SQUARE SHANK SOLID TYPE

For use with Drilling Pillar and Engineer's Ratchet Brace For Drilling and Tapping Dead Gas and Water Mains.
Made in Best Cast Steel.

	SIZES IN INCHES					
Nominal Diameter	½	¾	1	1¼	1½	2
Symbol	311/1	311/2	311/3	311/4	311/5	311/6

No. 311A

ROSCOE PATTERN SHANK SOLID TYPE

For use with Central Action Drill Stand
Made in Best Cast Steel.

	SIZES IN INCHES					
Nominal Diameter	½	¾	1	1¼	1½	2
Symbol	311A/10	311A/11	311A/12	311A/13	311A/14	311A/15

No. 311B

ROSCOE PATTERN SHANK WITH SCREWED ENDS FOR DETACHABLE CUP DRILLS

For use with Central Action Drill Stand
Made in Best Cast Steel.

	SIZES IN INCHES							
Nominal Diameter	¾	1	1¼	1½	2	2¼	2½	3
Symbol	311B/1	311B/2	311B/3	311B/4	311B/5	311B/6	311B/7	311B/8

No. 311C

DETACHABLE CUP DRILLS FOR No. 311B

Made in High Speed Steel or Best Cast Steel.

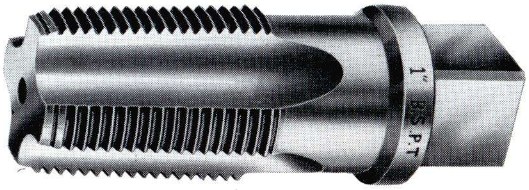
	SIZES IN INCHES							
Nominal Diameter	¾	1	1¼	1½	2	2¼	2½	3
Symbol	311C/10	311C/11	311C/12	311C/13	311C/14	311C/15	311C/16	311C/17

GAS MAINS TAPS AND REAMERS

BEST CAST STEEL

B.S.P. (TAPER) TAPS FOR GAS MAINS (Taper 1 in 16)

BEST CAST STEEL



No. 312SC

With

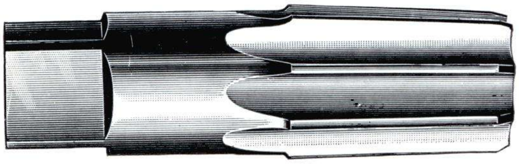
SQUARE END SHANK AND COLLAR

For Tapping Dead Gas Mains

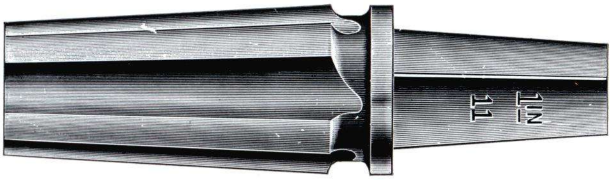
	SIZES IN INCHES							
Nomlina Diameter	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$	1$\frac{1}{2}$	2
Symbol	312SC/1	312SC/2	312SC/3	312SC/4	312SC/5	312SC/6	312SC/7	312SC/8

STRAIGHT FLUTE GAS REAMERS B.S.P.T. (Taper 1 in 16)

BEST CAST STEEL



No. 312P



No. 312T

No. 312P

With

SQUARE END SHANK (WITHOUT COLLAR)

	SIZES IN INCHES								
Nominal Diameter	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$	1$\frac{1}{2}$	2
Symbol	312P/1	312P/2	312P/3	312P/4	312P/5	312P/6	312P/7	312P/8	312P/9

No. 312

With

SQUARE END SHANK AND COLLAR

	SIZES IN INCHES								
Nominal Diameter	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$	1$\frac{1}{2}$	2
Symbol	312/10	312/11	312/12	312/13	312/14	312/15	312/16	312/17	312/18

No. 312T

With

TAPER SQUARE SHANK AND COLLAR

	SIZES IN INCHES								
Nominal Diameter	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1$\frac{1}{4}$	1$\frac{1}{2}$	2
Symbol	312T/20	312T/21	312T/22	312T/23	312T/24	312T/25	312T/26	312T/27	312T/28

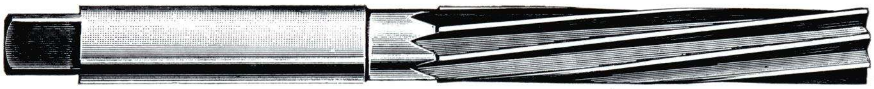
SECTION FIVE

our guide to your selection of HIGH SPEED STEEL REAMERS.

THE FOLLOWING PAGES ILLUSTRATE THE VARIOUS TYPES OF STANDARD REAMERS MADE IN ALL CASES TO B.S. 122 PART 2 1952 OR ANY SUBSEQUENT AMENDMENTS.

H.S.S. PARALLEL HAND REAMERS

FRACTIONAL AND METRIC SIZES
(B.S. 122 PART 2 1952 TABLE 3).



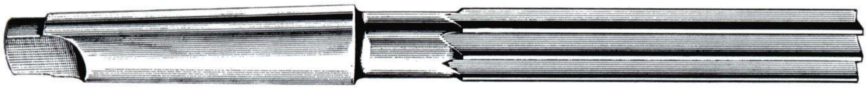
No. 325.
Straight Flutes.

No. 326.
Spiral (Helical) Flutes (recommended).
From $\frac{1}{16}$″ to 2″ nominal diameter.
From 2 m/m to 50 m/m nom. dia.

Parallel Hand Reamers are supplied with a taper lead and a bevel lead, but where ordered without any lead for bottoming are subject to special prices based on quantity required.

H.S.S. PARALLEL MACHINE REAMERS

FRACTIONAL AND METRIC SIZES
(B.S. 122 PART 2 1952 TABLE 4).



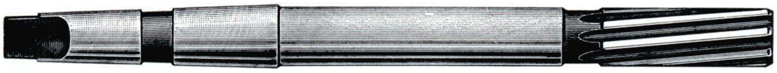
No. 327.
Straight Flutes. Parallel Shanks.
(.0005″ less than nominal diameter)
From $\frac{1}{16}$″ to $\frac{1}{4}$″ nominal diameter.
From 2 m/m to 6 m/m nom. dia.

No. 328.
Spiral (Helical) Flutes.
Taper Morse Shanks.
From $\frac{1}{8}$″ to 3″ nominal diameter.
From 3 m/m to 50 m/m nom. dia.

Machine Reamers are supplied with a bevel lead only but when ordered with taper lead or with square corners for bottoming, are subject to special prices based on quantities ordered.

H.S.S. MACHINE JIG REAMERS

With Morse Taper Shanks
(B.S. 122 PART 2 1952 TABLE 5).



No. 423.
Morse Taper Shanks.
From $\frac{1}{4}$″ to 2″ nominal diameter.

Thses Reamers have short virtually parallel cutting edges with bevel lead and a guide .0005″ less than nominal diameter of the cutting edges, between the shank and cutting edges.

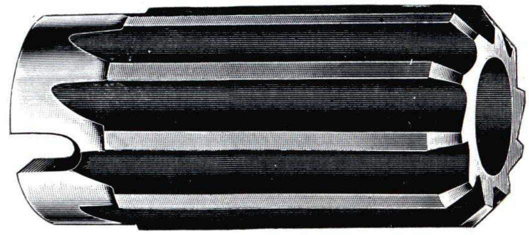
LEFT HAND SPIRAL (HELICAL) FLUTES for RIGHT HAND CUTTING will be supplied for Hand and Machine Reamers unless otherwise specified.

HIGH SPEED STEEL REAMERS.

H.S.S. SHELL REAMERS AND SHELL DRILLS

With Taper or Parallel Holes (Taper 1 in 96)

(B.S. 122 PART 2 1952 TABLE 8 OR 9).



No. 262.

Spiral (Helical) Flutes.

No. 262A.

Straight Flutes.

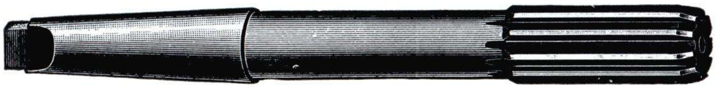
From 1″ to 4″ nominal diameter.
From 20 m/m to 100 m/m nom. dia.

Shell Reamers have parallel cutting edges, the land being relieved on the periphery and a relieved bevel lead.

Shell Drills have bevelled lead only, backed off for cutting purposes.

H.S.S. CHUCKING REAMERS

(B.S. 122 PART 2 1952 TABLES 6 AND 7).



No. 324PS.

Parallel Shanks.
From ¼″ to ½″ nominal diameter.
From 5 m/m to 32 m/m nom. dia.

No. 324TS.

Morse Taper Shanks.
From ¼″ to 2″ nominal diameter.
From 5 m/m to 32 m/m nom. dia.

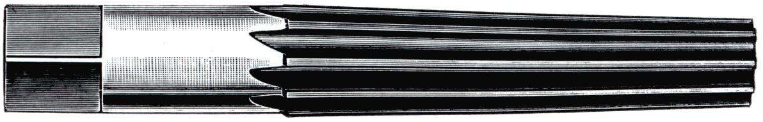
These Tools are for use in a lathe tailstock or turret and have short cutting edges and long body clearance between shank and cutting edges. The cutting edges have bevel lead.

H.S.S. SOCKET REAMERS

FINISHING OR ROUGHING

(B.S. 122 PART 2 1952 TABLES 11 AND 12).

Suitable for Reaming holes to fit Morse Shanks of Twist Drills, Reamers, End Mills, etc.



No. 343TS.

Morse Taper Shanks.
For Machine use.
Finishing or **Roughing*.
For Morse Taper Sockets.
Nos. 0 to 6.
**Roughing Reamers (with notched cutting edges) are .010″ smaller in diameter than Finishing Reamers.*

No. 343.

Parallel Hand Shanks.
For Hand or Machine use.
Finishing only.
For Morse Taper Sockets.
Nos. 0 to 6.

HIGH SPEED STEEL REAMERS.

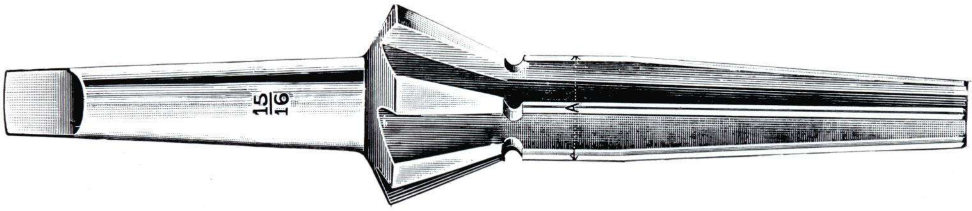
H.S.S. COMBINED REAMER AND COUNTERSINK

FOR PLATE WORK.

No. 269.

Morse Taper Shanks
(Angle of Countersink 60°).

From $\frac{5}{8}''$ to $1\frac{5}{16}''$ dia. of Reamer.
From $1\frac{3}{8}''$ to $2\frac{15}{32}''$ dia. at large end of countersink.

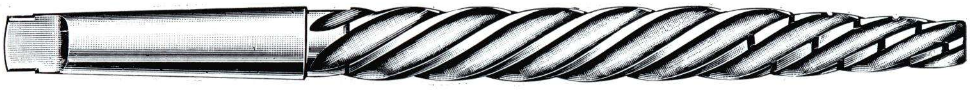


H.S.S. TAPER BRIDGE OR BOILERMAKERS' REAMERS

(B.S. 122 PART 2 1952 TABLE 18).

No. 258.

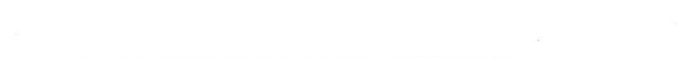
Morse Taper Shanks.
With Spiral (Helical)
(not exceeding 30°) Flutes.



No. 259.

Morse Taper Shanks.
With Straight Flutes.

From $\frac{7}{16}''$ to $1\frac{1}{2}''$ diameter.
From 8 m/m to 35 m/m diameter.



The main purpose for which these Reamers are used is Structural Work and are supplied with parallel cutting edges and a long taper lead.

HIGH SPEED STEEL REAMERS.

H.S.S. COUNTERSINKS.

No. 268.

Morse Taper Shank
(Angle of Countersink 60° or 90°).

From $\frac{1}{2}$″ to 3″ diameter at large end of countersink.

From $\frac{5}{32}$″ to 1″ diameter at small end of countersink.

H.S.S. TAPER PIN REAMERS

(B.S. 122 PART 2 1952 TABLE 16)

Taper 1 in 48.

No. 323.

Straight Flutes.
Hand Shanks (as illustrated).
From $\frac{1}{16}$″ (No. 7/0) to $\frac{7}{8}$″ (No. 11) nominal diameter.
From 1.5 m/m to 50 m/m nom. dia. (Taper 1 in 50).

These may be supplied with Spiral (Helical) Flutes at special prices.

No. 323TS.

Straight Flutes.
Morse Taper Shanks.
From $\frac{3}{16}$″ (No. 2) to $\frac{7}{8}$″ (No. 11) nominal diameter.

These may be supplied with Spiral (Helical) Flutes (not exceeding 30°) at special prices.

H.S.S. QUICK SPIRAL TAPER PIN REAMERS

Taper 1 in 48.

No. 323Q.

Parallel Shank.
For Machine use only.
From $\frac{5}{64}$″ (No. 6/0) to $\frac{1}{2}$″ (No. 8) nominal diameter.

H.S.S. QUICK SPIRAL TAPER PIN REAMERS

Taper 1 in 48.

No. 323QTS.

Morse Taper Shank.
For Machine use only.
From $\frac{1}{4}$″ (No. 4) to 1″ (No. 11) nominal diameter.

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